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THE UNIVERSITY OF ALBERTA

A STUDY OF THE INTERNAL WAGE STRUCTURE OF VOCATIONAL EDUCATION TEACHERS IN ALBERTA, 1962-1983

BY

©

CORINNE G. ANDERSON

A THESIS

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IN

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled A STUDY OF THE INTERNAL WAGE STRUCTURE OF VOCATIONAL EDUCATION TEACHERS IN ALBERTA, 1962-1983, submitted by Corinne G. Anderson, in partial fulfillment of the requirements for the degree of Master of Education.

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Date March 12, 1987

ABSTRACT

The purpose of this research was to investigate the extent to which provisions of collective agreements between The Alberta Teachers' Association and various Alberta school boards were instrumental in the development of an internal wage structure for vocational education teachers during the years 1962 to 1983.

An analysis of the vocational education initiatives undertaken by the federal government and Alberta authorities during the early 1960's provided the historical context for the elaboration of the problem. A model of integrative bargaining and a consideration of wage determination criteria were used in the construction of sub-problems.

Data were collected via a 15 item questionnaire developed for the study. It was distributed to 544 vocational education teachers who were employed by Alberta school boards during the 1983/84 school year. A response rate of 43.0 percent was attained. Statistical procedures in the data analysis involved the use of frequency distributions, analysis of variance, significance tests for grouped data and correlation measures.

A study of collective agreement provisions governing the initial employment of each respondent revealed that all permitted, within established limits, a variation in the initial wage rate of vocational education teachers from the base wage rate of other teachers. In that 78.4 percent of the respondents obtained some form of salary recognition for previous industrial or trade experience, the provisions of the various collective agreements examined were judged to be operative throughout the period of the study. While the extent of recognition was generally specified as related to the industrial or trade experience of each vocational education teacher, it was seldom defined with precision. Thus, some scope for individual bargaining was permitted.

Several sub-problems were formulated to measure the association between the initial wage rate of respondents and factors such as amount of previous industrial or trade experience, nature of such experience, age at time of first employment, sex, location of initial employment, year of initial employment, subject area assignment and prevailing external wages. Significant differences among the average wage relationship measures were found when respondents were compared on the bases of amount of previous industrial or trade experience, age at time of first employment and year of initial employment. External wage rates were met or exceeded in 81 percent of the cases within a limited study of respondent wage rates.

Conclusions, recommendations and implications for further research were put forward on the basis of the findings.

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TABLE OF CONTENTS

CHAPTER PAGE

I THE PROBLEM 1

Introduction 1

Statement of the Problem 5

Sub-Problems 5

Significance of the Study 6

Delimitations 7

Limitations 8

Assumptions 8

Operational Definitions 9

II REVIEW OF RELATED LITERATURE 15

Introduction 15

Wage Structure 15

The Origin of the Technical Vocational Training Act 18

Labor Supply and Professional Preparation 22

Professional Legitimacy and Wage Determination . . 25

Competing Views of Wage Determination 28

Integrative Bargaining and Conflict Resolution . . 31

Wage Determination Post TVTA 35

Related Studies 37

III RESEARCH DESIGN AND METHODOLOGY 41

Introduction 41

Individual Earnings 41

CHAPTER PAGE

Selection of the Research Population 41

Data Collection 43

Instrumentation 44

Pilot Test 45

Preparation and Distribution 46

Description of the Questionnaire Items 47

Treatment of the Data 50

IV PRESENTATION AND ANALYSIS OF THE DATA 55

Introduction 55

Level of Response 55

Profile of the Respondents 58

Age 58

Year of Initial Employment as a Vocational Education Teacher 58

Previous Teaching Experience 61

Industrial or Trade Experience 61

Journeyman's Certificate or Equivalent 61

Initial Vocational Assignment 64

Total Industrial/Trade Years 68

Salary Recognition 68

Initial Salary Category 68

Index of Respondents' Initial Wage to Collective Agreement Base Wage 71

Analysis of the Sub-Problems 73

Sub-Problem 1 73

Sub-Problem 2 74

CHAPTER PAGE

Sub-Problem 3 76

Sub-Problem 4 79

Sub-Problem 5 82

Sub-Problem 6 87

Sub-Problem 7 87

The Relationship Between Selected Variables Used in the Analysis of Sub-Problems 1, 2, 4 and 5 92

V RESEARCH FINDINGS 100

Introduction 100

The Problem 100

Sub-Problem 1 102

Sub-Problem 2 103

Sub-Problem 3 104

Sub-Problem 4 105

Sub-Problem 5 106

Sub-Problem 6 107

Sub-Problem 7 108

Interrelationship of Variables Used in the Study 109

VI SUMMARY, MAJOR FINDINGS, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS 111

Introduction 111

Summary 111

Nature of the Study 111

Instrumentation and Methodology 112

CHAPTER PAGE

Review of Major Findings 112

Conclusions 116

Introduction 116

Historical Context 117

Wage Determination and Collective Bargaining 118

Wage Determination Criteria 118

Market Forces 119

Social Factors 121

Legislative Provisions 121

Implications for Further Study 122

Recommendations 122

BIBLIOGRAPHY 124

APPENDIX A Original Clauses Governing the Compensation of Vocational Education Teachers 128

APPENDICES B & C Summary of Correspondence Between the Researcher and The Alberta Teachers' Association Concerning Research Assistance 133

APPENDICES D, E & F Covering Letters and Questionnaire . . . 136

LIST OF TABLES

Table Page

1 Established Salary Schedule Between the Alberta Teachers' Association and the North Peace School Authorities Association - September 1, 1986 to December 31, 1986 19

2 Relative Gains of Teachers and School Boards: Analysis of Original Clauses Governing Compensation of Alberta Vocational Education Teachers - 1963/64 and 1964/65 33

3 Frequency and Percentage Frequency Distribution of Respondents Relative to the Population on Selected Variables 57

4 Frequency and Percentage Frequency Distribution of Age of Respondents at the Time of Initial Employment 59

5 Frequency and Percentage Frequency Distribution of Respondents' Year of Initial Employment 60

6 Frequency and Percentage Frequency Distribution of Previous Teaching Experience in Alberta and Years of Previous Teaching Experience 62

7 Frequency and Percentage Frequency Distribution of Respondents' Type of Industrial or Trade Experience Prior to Initial Employment as Vocational Education Teachers 63

8 Frequency and Percentage Frequency Distribution of Respondents' Journeyman Certification or Equivalent 65

9 Frequency and Percentage Frequency Distribution of Respondents' Initial Vocational Education Teaching Assignments 67

10 Frequency and Percentage Frequency Distribution of Respondents' Total Number of Years of Experience in Industry or Trade After Apprenticeship 69

11 Frequency and Percentage Frequency Distribution of Respondents' Salary Recognition and Method of Recognition 70

Table Page

12 Frequency and Percentage Frequency Distribution of Respondents' Initial Salary Category 71

13 Examples of Index Calculations 72

14 Measures of Central Tendency for the Relationship Between Initial Wage of Vocational Education Teachers and Base Wage Rate (Index) 73

15 Oneway Analysis of Variance of Previous Industrial or Trade Experience Classified by Years of Previous Experience of All Respondents 75

16 Oneway Analysis of Variance of Previous Industrial or Trade Experience Classified by Years of Previous Experience of Respondents With Salary Recognition . . 75

17 Oneway Analysis of Variance of Type of Previous Industrial or Trade Experience Classified by Occupational Backgrounds of Respondents (N=169) . . . 77

18 Oneway Analysis of Variance of Type of Previous Industrial or Trade Experience Classified by Occupational Backgrounds of Respondents Who Received Salary Recognition (N=132) 78

19 Oneway Analysis of Variance for Age of All Respondents Classified by Age Groupings (N=213) 80

20 Oneway Analysis of Variance for Age of Respondents Who Received Salary Recognition Classified by Age Groupings (N=167) 80

21 Differences in Index Means of Male and Female Vocational Education Teachers Classified by a) All Respondents (N=213) and b) Those With Salary Recognition (N=167) 81

22 Oneway Analysis of Variance of Geographic Location of a) All Respondents (N=213) and b) Respondents Who Received Salary Recognition (N=167) Classified by Type of Location 83

23 Oneway Analysis of Variance of Geographic Location of a) All Respondents and b) Respondents Who Received Salary Recognition Classified by Largest Employing School Districts 84

Table Page

24 Oneway Analysis of Variance of Year of Initial Employment of All Respondents Classified by Time Periods (N=213) 86

25 Oneway Analysis of Variance of Year of Initial Employment of Respondents Who Received Salary Recognition Classified by Time Periods (N=167). . . 86

26 Oneway Analysis of Variance of Initial Subject Area of All Respondents Classified by Subject Areas in Which N=>5 (N=200) 88

27 Oneway Analysis of Variance of Initial Subject Area of Respondents Who Received Salary Recognition Classified by Subject Areas (N=158) 89

28 A Comparison of Internal and External Wage Rates of Selected Occupations, 1962-1983 93

29 Coefficients of Correlation Among X_2, Years of Previous Industrial or Trade Experience, X_4, Age at Time of Initial Employment and X_5, Year of Initial Employment 99

30 Coefficients of Correlation Between the Independent Variables X_2, Years of Previous Industrial or Trade Experience, X_4, Age at Time of Initial Employment, X_5, Year of Initial Employment and the Dependent Variables, X_R, Index Measure of All Respondents and X_S, Index Measure of Respondents Who Received Salary Recognition 99

LIST OF FIGURES

Figure Page

1 Vocational Education, Route 1, Relationships 23

CHAPTER I

THE PROBLEM

Introduction

Funding initiatives of federal and provincial governments during the decade of the 1960's increased the focus of attention on vocational instruction in Canada's school systems. The impetus for the expenditure of public funds came from government concern for Canadian manpower needs and the skills required by workers to function in a changing industrial setting and an increasingly competitive world economy. Outdated training schemes and obsolete physical plant were also perceived as factors requiring immediate attention.

The single most important federal financial initiative undertaken during this expansionary period was the Technical and Vocational Training Assistance Act of 1961-1967 (TVTAA). Under this Act and its related agreements with participating provinces, the federal government injected approximately $1.1 billion dollars into the Canadian economy for building and equipping vocational education facilities at the secondary school level and technical education facilities at the non-university postsecondary school level. The provinces spent a further $1.5 billion dollars in this same endeavor. (Bryce, 1970)

The TVTAA has been well researched by both Bryce (1970) and Grywalski (1973). Both researchers devoted considerable attention to the structure and nature of the Act. Grywalski studied in depth the Alberta teacher training programs developed to prepare qualified teachers for the secondary school vocational education program of studies. The compensation of that labor supply in its Alberta employment during the years 1962 to 1983 comprises the subject matter of this study.

Alberta's willingness to participate in the programs of the Technical and Vocational Training Assistance Act was formalized on July 18, 1961 when it became a signator to an Agreement with the federal government. Ten programs under the Technical and Vocational Training Agreement became eligible for various forms of federal shared cost funding. Among these was a 50-50 shared cost program for the training of vocational and technical teachers, supervisors, and administrators. (TVTA, 1961, pp. 5-6) Activity within Alberta's educational sector immediately began to focus on the potential sources of supply of individuals who could qualify as vocational education teachers. The two most promising labor pools for recruiting teachers appeared to be: a) certificated teachers employed by Alberta school boards whose interests, background and talents made them suitable candidates for acquiring a journeyman's certificate in a selected trade, or b) skilled tradesmen with a journeyman's certificate or equivalent who were prepared to undertake university level instruction for the purpose of becoming certified as vocational education teachers.

Financial incentives in the form of bursaries provided by the Department of Education and local school boards were available to assist individuals with tuition, living and other costs while attending university. These bursaries were established to entice tradespeople to enroll in the teacher education program to become vocational education teachers. However, there was early recognition of the fact that such incentives were insufficient to guarantee the viability of an initial and, more importantly, long lasting labor supply of vocational education teachers. (Grywalski, 1973, pp. 181-182) School boards were reluctant to guarantee a minimum salary to the candidates in training. In the absence of a guaranteed minimum salary there was no criterion by which potential vocational education teachers could judge the financial merits of teaching against incentives in the private sector.

It is in this context that a form of accommodative collective bargaining commenced between The Alberta Teachers' Association and the school boards where vocational education facilities were located. Basic supply and demand factors were in place but neither labor nor management were capable of establishing definitive criteria to assure the successful acquisition of a labor supply or its remuneration. This was particularly so because of the sudden establishment of programs associated with the TVTAA and the virtual absence of any consultation between the federal government and the provinces prior to the establishment of the Act. (Bryce, 1970, p. 233) At no point did the federal authorities appear to consider the established infrastructures that were designed to govern employer-employee relations that existed within each province.

Alberta teachers had acquired collective bargaining rights under the terms of the Industrial Conciliation and Arbitration Act Amendment Act (1941). The Alberta Teachers' Association subsequently became the bargaining agent for its active members under the bylaws of the Teaching Profession Act. According to the terms of this Act membership in the Association was a condition of employment for all certificated teachers in both the public and separate school systems of the province. Thus, the decision to define the newly trained or retrained vocational education personnel as "teachers" and not "instructors" brought about automatic membership in The Alberta Teachers' Association and its bargaining units. From a labor perspective The Alberta Teachers' Association was a closed shop union in a position to negotiate terms and conditions of employment for a relatively "new" form of labor.

Most theories of union behavior focus on efforts made to maximize some well-defined objective function. Despite debate over the precise definition of that function, "it is generally agreed that in most cases unions value 1. the wage and fringe benefits they can achieve for their members and, 2. their members' employment levels". (Ehrenberg & Smith, 1982, p. 338) While in its purest form, any theory of labor demand will focus on market constraints which can limit union objectives, the case in point departs from such a description.

The standard mode of remuneration for teachers was, and is, a salary grid structure based on two components; years of professional preparation (university training) and years of teaching experience. The normal market constraints on these variables are the willingness and ability of employers to a) expand the definition of training to attract more highly qualified labor, and b) increase the unit wage to retain a competitive position vis-a-vis other employers both internal and external to the education sector. In the case of vocational education teachers, the traditional definitions of professional preparation and teaching experience presented problems for both parties to the collective bargaining process, i.e., the negotiating committees of The Alberta Teachers' Association and employing school boards. The establishment of a wage structure that was both attractive and competitive implied provisions that were antithetical to the already well established internal wage structure.

The ability of the employer to pay for labor was conventionally defined within an economic framework having two income sources. School boards were financed by grants from the provincial authority and by tax levies on local property. In the early 1960's Alberta established a school financing program upon a minimum source of income to all school boards (School Foundation Program Fund), special grants for costly or new programs (School Grants Regulations) and access to local property tax (Government of Alberta, School Grants Regulations, 1960). Operating funds for vocational education were provided in the form of basic instructional grants, those most closely associated with labor costs, and supplemented via other techniques such as credit enrolment unit grants.

Statement of the Problem

The main problem of this investigation was to ascertain the extent to which Alberta collective agreement provisions governing the recognition of vocational education teacher preparation and industrial or trade experience were instrumental in the development of an internal wage structure for vocational education teachers.

Sub-Problems

In support of the major problem, the following sub-problems were established for this study:

1. To what extent did the initial wage rates of vocational education

teachers deviate from the base wage rates of other teachers in the years 1962-1983?

2. To what extent was industrial or trade experience before entry into teaching associated with any initial wage rate variation?

3. To what extent was industrial or trade experience in particular occupations before entry into teaching associated with any initial wage rate variation?

4. To what extent was any initial wage rate variation associated with personal characteristics such as age and sex?

5. To what extent was any initial wage rate variation associated with geographic location (urban vs. rural employment) or a time factor (year of initial employment as a vocational education teacher)?

6. To what extent was the subject area demand for vocational education teachers associated with any variation in the initial wage rate?

7. To what extent were the initial wages of vocational education teachers competitive with the external wages of tradespeople?

Significance of the Study

As part of the broader field of labor economics this study attempted to identify economic and related factors associated with the provision of a labor supply (Alberta vocational education teachers) to a labor market in which there was a demand for teachers with particular skills at the secondary school level.

The research also attempted to ascertain if there was any relationship between the internal wage structure of vocational education teachers and the external wage structure of tradespeople employed in corresponding trade occupations during the period of this study. The theory of wage determination in a process of free collective bargaining formed the framework of this research. A review of the literature indicated that much had been written about the historical background in which the structures under study developed, but no attention had focussed on the crucial factors of supply and demand as they related to vocational education teachers. An explanation of the supply/demand relationship through the process of wage determination was viewed as essential to an understanding of how new forms of labor are compensated within a traditional labor market.

No research of this type has been conducted in Alberta. Wallace (1970) focussed on the monetary returns to investment in vocational education teacher training in Alberta. His cost-benefit analysis made use of a consolidated salary schedule of 1968-69 collective agreements to determine an average starting wage for vocational education teachers. The research did not focus on actual salaries earned or on the relationship between vocational and non-vocational education teachers.

Delimitations

The delimitations that establish the parameters of this study are provided in this section.

This study was restricted to vocational education teachers who taught in their areas of specialization in the public and separate secondary schools of Alberta during the period 1962-1983. The areas of specialization were those vocational education subjects which, as a condition of provincial funding to an employing school board, required instruction by a teacher holding a journeyman's certificate or its equivalent.

The investigation was delimited to initial salaries as provided for in collective agreements for the years 1962-1983 between Alberta school boards and The Alberta Teachers' Association, the bargaining agent for all teachers employed by public and separate school boards. In the case of each respondent the investigation was delimited to the year of his/her initial salary recognition, that is, the respondent's salary based on teacher preparation and previous teaching, industrial or trade experience in the year he/she was first employed as a vocational education teacher.

Limitations

Limitations which further narrowed the scope of this study were dictated by the extent of public information available to the researcher concerning the origin of provisions in collective agreements in Alberta that governed initial placement of vocational education teachers on the salary grid.

The investigation was limited to a census of vocational education teachers who were employed by Alberta school boards in 1983-84 and to the accuracy of response by this survey population to the research questionnaire.

Assumptions

It was assumed that collective agreement provisions governing the compensation of vocational education teachers operated in a manner that permitted a variation in initial wage rates between vocational education teachers and other teachers.

It was assumed that the university training of vocational education teachers took place pursuant to the provisions of the Technical and Vocational Training Agreement between the Governments of Canada and Alberta during the period 1962 to 1970 and that subsequent university training of vocational education teachers took place pursuant to the requirements of Alberta agencies and institutions responsible for vocational teacher education.

Operational Definitions

In conducting the investigation the researcher established operational definitions for terms that were used throughout the study.

Advance Placement

A term used by The Alberta Teachers' Association, the school boards, and the vocational education teachers to describe the extent to which there is recognition of previous industrial experience and other factors in determining the initial salary rate of a vocational education teacher. Therefore, Base Rate Salary + Previous Recognition = Advance Placement. (ATA Collective Agreements, various years)

The Alberta Teachers' Association

A body corporate, established pursuant to the Teaching Profession Act (1935) with compulsory membership of all persons holding a teaching certificate other than a superintendent of schools and employed by a public or separate school board as teachers. Its objects are to advance the cause of education, to improve the teaching profession, to increase public interest in and support for education and to cooperate with other bodies having similar objects. (The Alberta Teachers' Association Members' Handbook, 1986, p. 14)

Automatic Wage Progression

A system in which wage increases are based upon the length of the employees' continuous service. Same as length-of-service increases and wage progression plan. (CCH Canadian Limited, 1984, p. 8)

Bargaining Unit

This is a term used to describe,

> The employee group which is the appropriate unit for collective bargaining as found by a labour relations board or as described in a collective agreement. Principal determining factors are history of collective bargaining, work performed, organization and representation of employees, their desires, interests and interchangeability. (CCH Canadian Limited, 1984, p. 8)

Base Rate Salary

The straight-time rate of pay per hour, job or unit, excluding premiums, incentive bonuses, etc. (CCH Canadian Limited, 1984, p. 10)

In this research, the base rate salary is the starting salary of a teacher as defined in collective agreements between The Alberta Teachers' Association and Alberta school boards. Base rate salary will vary from employer to employer and within collective agreements depending upon years of professional preparation. In general, each collective agreement will consist of six base rate salaries corresponding to the number of years of university education beyond grade twelve.

Collective Agreement

An agreement in writing between an employer and the union representing his employees which contains provisions respecting conditions of employment, rates of pay, hours of work and the rights or duties of the parties to the agreement. Ordinarily, the agreement is for a definite period such as one, two or three years. (CCH Canadian Limited, 1984, p. 18)

External Wage Structure

> Relationship between the key rates of various individual firms or establishments . . . a stable group ~~of~~ wage-determining units which are so linked together by (1) similarity of product markets, (2) resort to similar sources for a labor supply, and (3) common labor-market organization (custom) that they have common wage making characteristics. (Bloom & Northrup, 1981, p. 361)

Increments

A sum of money provided by the employer to the employee at the end of a fixed time in recognition of teaching experience attained by the employee "on the job". Normally, increments are a standard of recognition of previous teaching experience within the salary schedules of collective agreements between Alberta school boards and teachers. (ATA Collective Agreements, various years)

For the purpose of this study, an incremental system of wage increases is synonymous with automatic wage progression.

Internal Wage Structure

> The whole complex of rates within the individual firm for all of the various jobs for which persons are employed . . . the wage structure which develops within the firm . . . reflects the influence of the external labor market but also to an important degree depends upon the specific skills peculiar to the enterprise and upon differentials which develop from long-standing custom. (Bloom & Northrup, 1981, pp. 360-362)

Journeyman

A craft or skilled worker who has completed apprenticeship training and been admitted to full membership in his or her craft. (Labour Canada, 1984, p. 14) The General Regulations of the Manpower Development Act (Alberta) define journeyman as the holder of a Certificate of Proficiency issued under the Act for trades recognized by the Act, or, in the case of certain trades, as persons who in the opinion of the Director of Apprenticeship and Trade Certification, are experienced and skilled workers in the relevant trade whether or not they hold a Certificate of Qualification for the trade. (General Regulations, Manpower Development Act, 1985, p. 1)

Previous Industrial or Trade Experience

Collective agreements between the ATA and Alberta school boards did not include a uniform definition of the type of industrial or trade experience that was eligible for salary recognition. In general, the terms "related industrial or trade experience" were most commonly used throughout the period 1962-1983. The use of this terminology in collective agreements allowed employing school boards to judge the extent to which potential vocational education teachers possessed previous trade experience relevant to the teaching assignment(s) to be allocated. It also provided scope for individual negotiation between the vocational education teacher and the employer. In some agreements amendments were made during the period 1962-1983 to limit "related industrial or trade experience" to experience post-apprenticeship. Formulae, such as "one increment for each two years of previous related experience" were not prevalent although some agreements made use of them in various years throughout the period. (ATA Collective Agreements, 1962-83)

Vocational Education Program

> The Vocational Education program is operated in Alberta Comprehensive High Schools to provide a means for all students who desire to learn about and develop skills in a number of trade or technology oriented career fields. Students enter the program at the career orientation stage. They are able to progress through the preparation levels so that they may leave high school with job entry skills leading directly to employment or to further training and education, thus helping them to become productive members of society. To ensure program currency and articulation arrangements with post-secondary institutions, senior courses are taught in specially designed and equipped facilities by certificated teachers who also hold journeyman or equivalent status. (Alberta Education, Program Policy Manual, 1985, p. 69)

While the vocational education program and the teachers employed to offer instruction in vocational education subjects are defined within the operational guidelines of Alberta Education for both curricular and grant purposes, the program and personnel are part of a larger framework of Industrial Education which is currently defined as,

> a program consisting of courses that provide a continuum of experiences, starting with exploratory experiences and activities in the elementary and junior high school, expanding in the high school to the development of skills in career fields, and culminating in on-the-job experience. (Alberta Education Industrial Education Manual, 1983, p. 2)

Industrial Education consists of two complementary educational programs; namely, Vocational Education and what was once labelled as Industrial Arts but now refers to the Industrial Education 10, 20, 30 series of courses. (Mathew, 1984, pp. 107-156) The latter are taught in a multiple activity laboratory. The courses are of a general nature placing emphasis on awareness, knowledge of basic concepts and skills of selected career fields. By distinction, the Industrial Education 12, 22, 32; 15, 25, 35 series of courses, or those concentrating on vocational competencies in selected trades require instruction in unit shops by teachers holding journeyman qualifications or their equivalent.

Vocational Education Teacher

A teacher of vocational education subjects who must,

> possess Alberta trade proficiency certification in trade areas recognized by the Apprenticeship and Trade Certification Branch, Alberta Manpower. In trade areas where journeyman certification has not been established by this branch, vocational education teachers must have training and experience that is equivalent to that required for journeyman certification. Evaluation of this training and experience is conducted by Alberta Education consultants. (Alberta Education, Program Policy Manual, 1985, p. 70)

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

The preceding chapter dealt with 1) those aspects of the Technical and Vocational Training Agreement that gave rise to the problem under study and, 2) the scope of the problem for the purposes of this research. This chapter contains a review of the pertinent literature and is organized under the following headings: Wage Structure, The Origin of the Technical Vocational Training Act, Labor Supply and Professional Preparation, Professional Legitimacy and Wage Determination, Competing Views of Wage Determination, Integrative Bargaining and Conflict Resolution, Wage Determination Post TVTA, and Related Studies.

Wage Structure

The economics of labor relations is concerned with labor supply, demand, and the labor market in which these factors operate. The convergence of supply and demand factors within a particular market is normally explained in terms of wage determination. Wage rates will tend to be higher in circumstances of relatively high demand and low supply. Conversely, a surplus of labor supply is normally viewed as the major factor explaining relatively lower wage rates. (Bloom & Northrup, 1981) These supply and demand constraints as well as wage rates in competitive industries and those within a particular industry form the subject matter for any mechanism of wage determination.

In the short run, comparative wage trends are usually most instrumental in determining wage changes. In practical terms, labor and management are constantly searching for, and are generally in contention over, the key industries and occupations to be used in the measure of comparability. Nonetheless, there is general agreement upon the object of the wage-determination exercise, whether it be through an informal mechanism such as consultation or a more structured procedure such as collective bargaining.

> The comparative-wages criterion is based on the principle of equal pay for equal work. Because, however, conditions for work, and the relative responsibilities of workers possessing the same skill differ between industries, and hence the work as such is seldom of equal value and intensity, the accepted meaning of the principle has come to be equal pay for the same type of work. (Peitchinis, 1975, p. 255)

This principle can be translated into two dimensions; those wages within a particular firm, industry or enterprise that compensate all the various occupations or levels of a single occupation and those wages paid in competing industries for the same or similar occupations. The former is the internal wage structure; the latter, the external wage structure. (Bloom & Northrup, 1981) It is important to note that both of these wage structures have conceptual and practical aspects and that they are rarely uni-dimensional. For example, one can describe the compensation structure of a large industry like General Motors in terms of its internal wage structure. This type of conceptual description might be used when evaluating the compensation practice of the firm. In practical terms, the question that is posed requires an investigation of all the components of the internal wage structure, viz., the wage rates of all occupations within the industry. These components are, in themselves, internal wage structures or substructures having their own history, characteristics, and methods of determination. A corollary of this approach applies when comparing General Motors with a competitor. Here, an external wage structure is examined comprised of its own substructures which may influence the internal wage structure or substructures of a competing industry.

The most common form of wage structure in Canada is that comprised of a schedule of hourly, weekly, monthly or annual rates in which progression from a base rate is made on the basis of service (experience factor), increased skill (training factor), or reassignment (job classification factor). Most occupational groups make use of this type of wage structure and, in this respect, teachers are no different. (Wood & Kumar, 1985)

The collective agreements established between Alberta's public and separate school boards and The Alberta Teachers' Association have made exclusive use of this type of wage structure throughout the period under study. (Summary and Analysis of Collective Agreements, ATA) Each salary grid or schedule is comprised of a set of six categories containing base rate salaries for each full year of university education or training beyond grade 12. Placement in a salary category is governed by a Statement of Qualifications issued by the Teacher Qualifications Service of The Alberta Teachers' Association, the agency established in 1967 by joint agreement of The Alberta Teachers' Association, the Alberta School Trustees Association and Alberta Education (formerly the Department of Education) to evaluate training credentials. Prior to that time, these evaluations were done by personnel of the Faculty of Education of the University of Alberta.

Progress beyond the base rate salary is made by fulfilling years of teaching service or experience with an employer. The definition of a year of teaching service is governed by each collective agreement. A teacher moving from one experience step to another on the salary grid obtains an "increment" for each year of experience or service to a maximum of either 10 or 11 increments depending upon the terms of the applicable collective agreement. At that point no further increments are paid and any additional salary increases are only obtained by adjustments to the wage schedule through collective bargaining. This system of incremental advancement is the most common form of automatic wage progression used in the internal wage structures of school districts throughout Canada. (Canadian Teachers' Federation, 1986) A typical Alberta salary grid or schedule appears in Table 1.

It is in this context of a traditional form of wage determination through collective bargaining that established procedures were challenged by the emergence of the vocational education teacher as a new form of labor supply.

The Origin of the Technical Vocational Training Act

> The decade of the 1960's witnessed, in North America and elsewhere, a burgeoning of interest in manpower policies and programs. In a sense, manpower policy was born in the sixties. Before this decade, programs directed to the allocation of quality of labour supply (the first, major thrust of most manpower policy) were minimal and certainly not dignified by so grand a term as "active manpower policy". (Ostry & Zaidi, 1979, p. 170)

The first phase in the evolution of Canadian federal manpower policy was associated with a relatively weak economy and a major concern with the sources of unemployment.

Table 1

Established Salary Schedule Between The Alberta Teachers' Association and the North Peace School Authorities Association - September 1, 1986 to December 31, 1986[1]

	Years of Teacher Education					
Years of Teaching Experience	One	Two	Three	Four	Five	Six
0	15,224	18,025	20,644	24,503	25,995	27,486
1	16,128	19,022	21,742	26,180	27,672	29,163
2	17,032	20,019	22,840	27,857	29,349	30,840
3	17,936	21,016	23,938	29,534	31,026	32,517
4	18,840	22,013	25,036	31,211	32,703	34,194
5	19,744	23,010	26,134	32,888	34,380	35,871
6	20,648	24,007	27,232	34,565	36,057	37,548
7	21,552	25,004	28,330	36,242	37,734	39,225
8	22,456	26,001	29,428	37,919	39,411	40,902
9	23,360	26,998	30,526	39,596	41,088	42,579
10	24,264	27,995	31,624	41,273	42,765	44,256
Increments	10x904	10x997	10x1,098	--------10x1,677--------		

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[1] Source: Article 4.1 of the Agreement

> The idea of structural transformation of the labour market lay at the heart of the new emphasis on manpower programs, especially (even primarily) training programs. Thus structuralist fears in Canada stimulated a very rapid expansion of shared-cost, manpower-training activity under the Technical and Vocational Training Assistance Act (TVTA). (Ostry & Zaidi, 1979, pp. 170-171)

As noted by Bryce in his commentary on the perceptions of both federal and provincial officials interviewed to determine their views as to the rationale for the TVTA, "the reasons given for the genesis of the TVTA Act all related to the problem of unemployment". (Bryce, 1970, p. 141) It was this concern, more than any other, that prompted the Government of Canada to introduce legislation on November 25, 1960 that, in the words of the Minister of Labour, the Honourable Mitchell Starr, would, "increase employment and foster national development . . . reduce Canada's dependence on immigration . . . create a highly trained labour force . . . upgrade many present members of the labour force . . . improve technical training facilities." (Government of Canada, House of Commons Debates, 1960, p. 231)

The TVTA Act was given Royal Assent on December 20, 1960. The Act provided for the federal Minister of Labour to enter into agreements with each of the provinces, for a period not exceeding six years, "to provide for the payment by Canada to the province of contributions in respect of the costs incurred by the province in undertaking programmes of technical and vocational training and in providing training facilities." (Technical and Vocational Training Agreement, 1961, p. 1)

The agreement entered into between the Province of Alberta and the Government of Canada on July 18, 1961 consisted of nine programs among which was a Program for the Training of Technical and Vocational

Teachers (T.T.), Program 7.

> A programme to provide training for occupationally competent persons in the art or science of teaching, supervising, or in the administration of technical or vocational training programmes at all levels whether in industry, in vocational schools or in institutes. (Technical and Vocational Training Agreement, 1961, pp. 5-6)

This training provision, which provided the impetus for the subject matter of this study, and the other programs of the Agreement have already been the subject of extensive research by Bryce (1970) and Grywalski (1973). In all cases, the literature points to the haste in which the TVTA was designed, the failure of federal officials to consult with their provincial counterparts, and the urgency felt by provincial and local agencies to take advantage of the financial and other opportunities afforded by the legislation.

> In regard to the possibility that the Federal Government had been encouraged by one or more provinces to develop the Act, research failed to reveal evidence of any direct pressure. All provincial representatives questioned either denied or were extremely dubious that any particular province might have had a part to play in the development of the TVTA Act . . . there was no indication from those interviewed or the documents examined that the Federal Government developed the Act in response to demands from any particular province or block of provinces. (Bryce, 1970, p. 153)

"From the evidence available, it appears that the decision of the Cabinet to prepare a new Act to assist technical and vocational training was made sometime during the first two weeks of October, 1960." (Bryce, 1970, p. 166) In the words of a senior official of the Ministry of Labour, who was urgently recalled from a tour of Western Canada, "they (the government) wanted a new Act and they wanted it on Thursday, two days after that official returned to Ottawa. (Bryce, 1970, p. 167)

When the legislation was introduced the following month its, "unilateral introduction . . . limited the opportunity for national debate on the Act. The legislation was a fait accompli before the junior partners to the argument, i.e., the provinces, had an opportunity to present their views." (Bryce, 1970, p. 189) The Minister of Labour, the Honourable Mitchell Starr, acknowledged in the House of Commons that ministerial consultation with the provinces had not taken place. (Bryce, 1970) Nonetheless, provincial response was, "considerable", and "unanticipated" in the period 1961-1963. (Bryce, 1970, p. 226) Traditional objections to federal intervention in the education sector appeared to dissolve (except in the Province of Quebec). The attractiveness of the Act's financial provisions overcame principle.

Labor Supply and Professional Preparation

The introduction of the TVTA and Alberta's participation in its programs were the legislative mechanisms instrumental to the development of a new labor market within the education sector of Alberta's economy. One supply and demand characterization of these developments was put forward by Wallace in his study of financial returns to investment in vocational education teacher training in Alberta. The teacher training program provided through the Faculty of Education, University of Alberta was perceived, "as the mediation point for the supply of properly qualified tradesmen on the one hand, and the social demand for vocational education teachers on the other". The agencies listed at the bottom of Figure 1 were those, "representing the special interests of their constituents". (Wallace, 1979, p. 7)

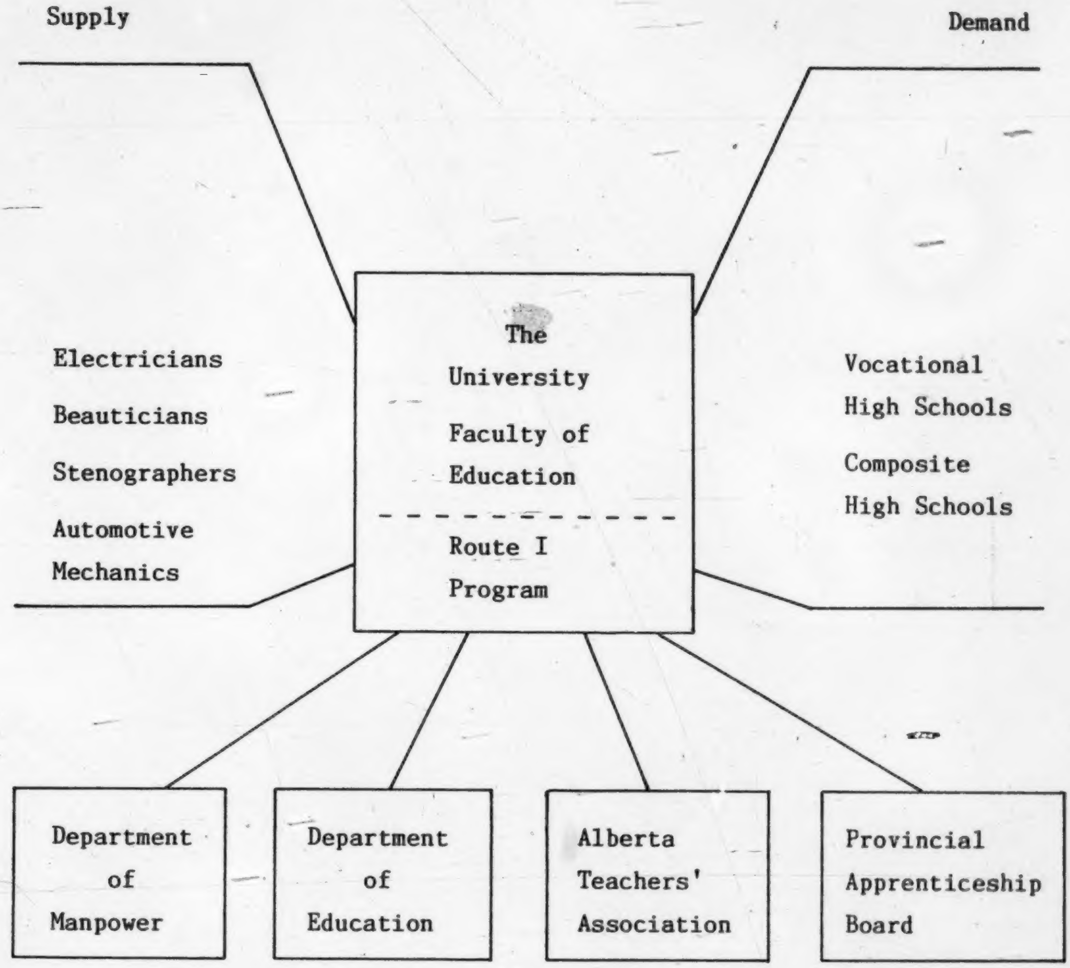
Supply
Demand
Electricians
Beauticians
Stenographers
Automotive Mechanics
The University Faculty of Education
Route I Program
Vocational High Schools
Composite High Schools
Department of Manpower
Department of Education
Alberta Teachers' Association
Provincial Apprenticeship Board

Figure 1. Vocational Education, Route 1, Relationships[1]

[1] Source: Wallace (1979), The Private Monetary Returns to Vocational Education Training in Alberta

The selection of university training as the appropriate mode for the preparation of vocational education teachers appears to have been made in the very early stages of Alberta's entry into the TVTA Agreement. While not directive, the explanatory notes appended to the original federal legislation indicated that with regard to Schedule 7 (Teacher Training), preference would be given to permanent or continuing programs associated with professional university training. (Technical and Vocational Training Agreement, Schedule 7, p. 23)

Since Alberta teacher certification was, at that time, the responsibility of the Board of Teacher Education and Certification, it was to this body that the matter of preparation of vocational education teachers was referred. The Subcommittee on Training for Vocational Education Teachers was created to study teacher preparation and to make recommendations to the Board. As early as June, 1961, the subcommittee endorsed the university training route and in October, the Board approved its recommendations. Early in 1962, the Dean of the Faculty of Education, University of Alberta, requested urgent action from the President of that institution. Approval in principle of the request to establish a Division of Industrial and Vocational Education, and, "the setting up of a suitable program in the Fall of 1962" was provided by the University at its General Faculty Council Meeting of January 29, 1962. (Grywalski, 1973, pp. 171-178)

Thus, within an eight month period, the decision was made to place vocational education teachers within the same professional preparation framework as other Alberta teachers. There is no evidence to suggest that alternatives to university preparation were seriously considered.

This preference for the traditional mode of preparation immediately placed vocational education teachers within a labor market in which supply and demand constraints were dealt with within a collective bargaining framework. The extent to which that procedure was able to accommodate this new labor commodity provides the subject matter of this study.

Professional Legitimacy and Wage Determination

Evidence that The Alberta Teachers' Association was concerned with its professional and bargaining agent responsibilities with regard to vocational education teachers was provided to the researcher by access to files of the Association directly related to the issues under study.

A staff report prepared in September, 1961 summarized the, "problems which face our organization" in the context of minimum preparation standards and occupational status. Reference was made to a survey of Alberta schools indicating a demand for 53 vocational education teachers as follows: "Motor mechanics (8), Welders (5), Electricians (5), Draughtsmen (6), Printers (1), Cooks (5), Machinists (4), Sheet metalworkers (5), Electronics (5), Commercial artists (3), Pipefitters (5), Hairdressing (1)". (Vocational Education Teachers, ATA, 1961)

In addition, a survey of Alberta teachers, "presently teaching" and holding journeyman's certificates revealed, "Carpenters (27), Electricians (4), Printers (1), Auto mechanics (11), Machinists (3), Boilermakers (1)". (Vocational Education Teachers, ATA, 1961)

With these supply and demand figures in mind, the writer queried whether I) matriculation was the minimum acceptable level of general education (to the ATA), 2) journeyman status and five years experience in industry should be judged as equivalent to one year of teacher education (if matriculation was also evident), 3) one year of professional education would be acceptable as the least amount of professional education, 4) "we (could) countenance this professional education being done outside the university"[1], and 5) separate salary schedules and different criteria for payment might be contemplated. (Vocational Education Teachers, ATA, 1961)

Three possible ATA positions were postulated. Position 1 provided a denial stance, viz., that vocational education "instructors" were not teachers and that the Association not participate in any discussions regarding their status. Position 2 provided an absolute equivalency stance, viz., that vocational education instructors be required to achieve the same academic and professional preparation as other teachers and thus to obtain the same salary rates. In this stance, the requirement for journeyman's status and five years experience in industry would be treated as irrelevant to salary categorization. Thus, one year of university education post-matriculation would provide for a salary category of one year. Position 3 provided a recognition stance based upon a minimum level of education (matriculation or beyond) and an "instructor" category for salary purposes. The perception of teacher organizations in four other provinces were provided along with the consensus view of, "all secretaries of teacher organizations . . . that our position 3 as described above is most defensible". Reference was made to the fact that the Association's representative on the Subcommittee of the Board of Teacher Education and Certification had been present at the meeting of September 11, 1961 at which time it had recommended the commencement of a recruitment program for vocational education teachers and a training program within the Faculty of Education. (Vocational Education Teachers, ATA, 1961, pp. 2-6)

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[1] This is the only reference the researcher was able to locate indicating that a non-university preparation route had been considered as an option.

During the ensuing months, the University of Alberta proceeded with its plans to expand facilities and staff and to structure a curriculum for a vocational education teacher preparation program of study which became known as Route 1. At the same time, plans were developed for a financial assistance program for prospective candidates. Program 9 of the Technical and Vocational Training Agreement between the Governments of Canada and Alberta, titled Student Aid, provided,

> Assistance to students at university and to nurses-in-training as provided under the Youth Training Act of 1939 and continued under the Vocational Training Co-ordination Act shall be continued with the Federal contribution determined on the basis of an allocation approved by the Minister but in no case in excess of 50% of provincial expenditure, in accordance with regulations in Schedule 9. (Technical & Vocational Training Agreement, 1961, p. 6)

A memorandum to school boards having or planning vocational education facilities from the Deputy Minister of Education dated February 2, 1962,

> made clear that school boards having vocational education facilities under their jurisdiction were to select suitable candidates at the earliest opportunity and it was suggested that individual bursaries be supplied to meet tuition, living expenses, and miscellaneous costs. The bursary was to be $2,000.00 for single men and $4,100.00 for married men. Each school board was to be reimbursed by the Department of Education up to three-fourths of the bursary payment. In turn, the Department of Education was to recover

> from the Federal Government 50% of the expenditures for bursaries. (Grywalski, 1973, p. 180)

Nonetheless, the issue of salary determination remained unresolved.

> Dr. Coutts expressed concern about the success of the training programme if the proposed salaries paid to vocational education teachers were to remain at $5,000.00 or less per annum. There was the danger that, rather than attract highly qualified personnel, it would attract those who had not been suitable in industry. Also problems were foreseen owing to the failure of school boards to spell out the specific salaries to be paid to vocational education teachers upon completion of their university programme. (Grywalski, 1973, pp. 181-182)

This concern was elaborated in a letter dated April 23, 1962 from Dr. Coutts to Dr. S.C.T. Clarke, General Secretary of The Alberta Teachers' Association. It noted the urgency with which the salary issue had to be resolved if the new program were to be successful and asked whether working agreements between school boards and teachers' locals could be in place by the end of May, 1962. (Vocational Education Teachers, ATA, 1962) The issue was indeed pressing because eleven school boards had already begun planning or construction of fourteen vocational high schools. (List of Publicly Owned and Operated Vocational Schools, Vocational High Schools, Institutes of Technology, and Schools of Agriculture, ATA, 1962, pp. 1-2) These jurisdictions were already seeking amendments to collective agreements so as to obtain agreement on salary determination for vocational education teachers.

Competing Views of Wage Determination

In May, 1962 the ATA called a meeting of teacher negotiating committees from jurisdictions in which vocational education facilities were to be established. The record indicates that the Provincial

Executive Council of The Alberta Teachers' Association had dealt with the vocational education teacher issue at its January meeting. The Association's position was that basic salary should be determined as per University of Alberta evaluation recognizing that a journeyman's certificate would probably be the equivalent of one year of teacher training. Thus, most applicants for the new training program would, if they had no previous teaching experience, receive an evaluation of two years of training (journeyman's certificate plus one year university). Because the salary level was judged inadequate to attract this labor supply, "there should be an unspecified amount for specialization". (Conference on Vocational Teachers Salaries, ATA, 1962, p. 3)

This position accentuated the Association's opposition to the use of salary increments to compensate vocational education teachers for previous trade experience. Incremental advancement through the salary schedule was the traditional method of automatic wage progression and it had always been reserved exclusively for "teaching" experience. The Association was therefore reluctant to "water down" the long standing definition of an increment. While it was prepared to negotiate "allowances" or monetary amounts to compensate for inadequate base wage rates, it held the teaching experience increment as inviolate. By contrast, the Alberta School Trustees Association was recommending to potential employing school boards that salary increments be used to provide compensation for past trade experience; one increment for each year of apprentice training and one half an increment for each year of journeyman's certification.

Dr. Coutts advised the delegates of the University of Alberta's progress with the new vocational education teacher training program. He noted that draftsmen, for example, would have to be granted a journeyman's certificate "equivalency" status because only a limited number of Alberta trades had access to journeyman's certification. Once again, he drew attention to the problem of wage determination. "When suitable applicants have been found, boards have been unable to offer definite salaries." (Conference on Vocational Teachers Salaries, ATA, 1962, p. 3) He urged cooperation between the ATA and the ASTA so as to prevent the failure of vocational education programs.

Peitchinis (1975) describes "Wage Determining Criteria" as cost of living, ability to pay and comparative wages. The latter, previously discussed on pages 15 to 17 of this chapter, emerged as the main criterion in the debate between employers and employees over compensation practices for vocational education teachers. The internal wage structure of Alberta teachers, as an occupational group, was well established by 1962. The emergence of vocational education teachers challenged that wage structure by compelling attention to several external wage structures (e.g. trades) that had seldom been used as comparative wage criteria in the establishment of teacher salary schedules. In the framework of labor economics a trade union was faced with a challenge to the structure of its internal wage. The problem it faced was how to integrate a new form of labor supply so that 1) the integrity of the traditional internal wage structure was preserved and 2) the internal wage structure compensated and attracted a new type of labor.

On the demand side, employers were faced with not altogether different challenges. The earliest proposals dealing with compensation did not suggest that school boards were interested in altering past practice to the extent that a salary schedule format was to be abandoned. The point of departure was on the nature of the salary schedule; not its existence. The ASTA was recommending a separate internal wage structure for vocational education teachers; one that related wage determination to external criteria, and that avoided automatic wage progression as "teaching" determined. This approach was not surprising in that it afforded opportunity to break the traditional pattern of wage determination and to allow greater flexibility in the determination of "competitive" wage rates.

Integrative Bargaining and Conflict Resolution

The competing views of wage determination were put to their first test during the negotiation of collective agreements expiring at the end of August, 1962. The relatively quick emergence of provisions covering vocational education teachers was indicative of the common pressures felt by both teachers and trustees. Neither party wished to be accused of impeding the progress of the vocational education program as it applied to students. Nor was there any desire to have confrontation over issues for which there appeared to be sufficient financial resources available to allocate among competing interests. The demand for labor was high particularly in light of the construction program underway and the need to make vocational education programs operational so as to maximize financial subsidies from both the federal and provincial governments. Labor supply was available, but limited. Failure to create appropriate conditions so that supply could be assured would have negated a major objective of the teachers' association, viz., to provide employment to its membership. These supply and demand conditions converged within an "integrative" collective bargaining process.

The concept of integrative bargaining, as enunciated by Walton and McKersie (1965), is explained as a subprocess of labor negotiations which, "function to find common or complementary interests and solve problems confronting both parties." (p. 4) It is distinguished from, "distributive bargaining", or that subprocess which deals with pure conflict of interest; "activities instrumental to the attainment of one party's goals when they are in basic conflict with those of the other party". (p. 4) By contrast,

> Integrative bargaining refers to the system of activities which is instrumental to the attainment of objectives which are not in fundamental conflict with those of the other party and which therefore can be integrated to some degree. Such objectives are said to define an area of common concern, a problem. Integrative bargaining and distributive bargaining are both joint decision-making processes. However, these processes are quite dissimilar and yet are rational responses to different situations. Integrative potential exists when the nature of a problem permits solutions which benefit both parties, or at least when the gains of one party do not represent equal sacrifices by the other. This is closely related to what game theorists call the varying-sum game. (Walton & McKersie, 1965, p. 5)

Appendix A contains the original clauses governing the compensation of vocational education teachers from collective agreements negotiated during the 1963/64 and 1964/65 school years. Analysis of these provisions in Table 2 demonstrates the effects of integrative bargaining and the relative gains made by both parties to the process.

Thus, within a relatively short period, teachers and school boards

Table 2

Relative Gains of Teachers and School Boards: Analysis of Original Clauses Governing Compensation of Alberta Vocational Education Teachers - 1963/64 and 1964/65[1]

	Collective Agreements Between the ATA and School Boards										
Respective Issues	CP[a]	EP[b]	ES[c]	GPP[d]	LP[e]	MHP[f]	RDP[g]	SD[h]	ND[i]	DP[j]	CP[k]
A. The Alberta Teachers' Association											
Salary Category by U of A Evaluation	X	X	X	–	X	X	X	X	X	X	X
Salary Category Advancement as per Other Teachers	X	X	X	X	X	X	X	X	X	X	X
Specialized Allowances	X	X	X	–	X	X	X	X	X	X	X
Maximum Vocational Salary Limited to Maximum Teacher Salary	X	X	X	X	X	X	X	X	X	X	X
Additional Increments Reserved for Teaching Experience	X	X	X	–	X	X	X	X	–	–	X
B. School Boards											
Discretion to Determine Initial Salary	X	X	X	X	X	X	X	X	X_1[2]	X	X
Recognition of Trade Experience	X	X	X	X	X	X	X	X	X	X	X
Recognition of Trade Experience Via Teaching Experience	–	–	–	–	–	–	–	–	X_1[2]	X_1[2]	–
Trade Increments	–	–	–	X	–	–	–	–	–	–	–
Salary Category Determined by Trade Training	–	–	–	X	–	–	–	–	–	–	–

[1] Source: Collective Agreements between the ATA and Alberta school boards for the school years 1963/64 and 1964/65, Appendix A

[2] X_1 = Limited

a = Calgary Public #19
b = Edmonton Public #7
c = Edmonton Separate #7
d = Grande Prairie Public #2357
e = Lethbridge Public #51
f = Medicine Hat Public #76
g = Red Deer City #104
h = Stettler District #1475
i = Northland Division #61
j = Drumheller Public #2472
k = Camrose Public #1315

began to develop an internal wage structure for vocational education teachers. Although it departed from the internal wage structure of other teachers in that it made provision for "advance placement" and/or allowances based on previous trade experience or specialization, it did not perpetuate these differentials beyond the maximum salary that could be earned by a teacher with similar training and equivalent teaching experience. Eventual integration of wage structures was a feature of these negotiations from the time the first set of provisions was established.

These early agreements did not totally resolve the problems arising from the employment of vocational education teachers. In May, 1965 The Alberta Teachers' Association called another meeting of negotiators from bargaining units in which vocational education teachers were employed. The purpose of this gathering was to investigate the salary situation so that the Provincial Executive Council of the Association could prepare a report for the 1966 Annual Representative Assembly, the Association's governing body. Notes from that meeting indicated that many issues remained unresolved, such as, a) the extent to which a single allowance "overpaid" some vocational education teachers and "underpaid" others, b) the reluctance of some school boards and the willingness of other boards to individually negotiate the initial salary rate with each vocational education teacher, c) concerns of non-vocational teachers that their new colleagues were able to privately negotiate their "own" wages and, d) the failure of school boards to live up to promises made to "bursary" teachers regarding their salary levels when they returned to teaching.

(Salaries of Vocational Teachers Meeting, ATA, 1965) These and other problems were to arise throughout the remainder of the decade.

Wage Determination Post TVTA

Federal legislation that gave rise to the subject matter of this study expired on March 31, 1967; phase-out provisions were implemented in the following three years. Its demise was attributable to several factors which have been explored by Bryce (1970) and Grywalski (1973). In brief,

> The TVTA approach was abandoned because of a number of perceived problems. These included: rapid escalation of costs and declining effectiveness of training the unemployed evidenced by high drop-out and low post-training employment rates: concentration on youth rather than unemployed adult labour-force members (with consequent federal-provincial tension); markedly uneven regional impact which (mainly because of the shared-cost approach) favoured the richer provinces. (Ostry & Zaidi, 1979, p. 175)

The termination of the Act did not bring about any significant change in the supply and demand factors for vocational education teachers. Nor, for purposes of this study, did its disappearance have any negative impact upon the provisions of collective agreements established through the integrative bargaining approach described in a previous section of this chapter. By 1967, vocational education in Alberta had become institutionalized to the extent that it was perceived as a valid component of high school education. The capital investment made during the 1961-67 period had provided facilities and equipment integral to the secondary education program at both the Department of Education and local levels of administration. The demand for vocational education in the secondary schools, as evidenced by student enrolments, continued to increase. Shortages of vocational education teachers and means of increasing their supply became a concern of all educational bodies in the province during the post TVTA period.

Analyses of vocational education teacher provisions in collective agreements between The Alberta Teachers' Association and employing school boards throughout the period 1962 to 1983 indicated that the problem solving mode of negotiation continued after 1967. Amendments to the earliest clauses of these agreements and the initiation of new clauses in other agreements all followed a similar pattern. First, the references in agreements that applied to vocational education teachers trained under the TVTA were gradually removed so that, by 1972, the clauses referred to vocational education teachers with university training. This amendment was necessary to take into account the existence of university training no longer subject to the conditions set forth under Program 7 of the TVTA and the fact that the Teacher Qualification Service (TQS) of the ATA was established in March, 1967. This service of the Association became the validation agency for university training replacing the service that had been provided by the Student Programs and Records Office, Faculty of Education, University of Alberta. From 1967 on, vocational education teachers were subject to the Principles of Evaluation established by the TQS Board made up of representatives from the ATA, the ASTA and Alberta Education. Because all collective agreements were amended to recognize the authority of TQS, the question of unique categories of training for vocational education teachers was resolved. In addition, the recognition of previous trade experience, which had created problems in the early negotiations, was gradually resolved. This resolution became effective with the adoption of the advance placement technique wherein vocational education teachers were placed on the salary schedule (within the TQS recognized category) at a salary step "consistent" with their previous trade experience, but not exceeding the maximum salary. While some agreements limited the extent of advance placement and others provided a formula for recognition of trade experience (e.g. one step of the salary schedule for every two years of related trade experience), most agreements remained silent on the issue. Therefore, the internal wage structure of vocational education teachers was, subject to these limitations, a matter for determination between employer and individual employee. This study focusses on that phenomenon. It is significant to note that most vocational education teacher clauses were either amended or designed to accommodate the aforementioned developments by the early 1970's and that they have remained relatively unchanged to 1986.

Related Studies

The theoretical treatment of wage determination and its application in labor markets governed by collective bargaining has been broadly studied. (Peitchinis, 1975; Ehrenberg & Smith, 1983) While wage comparisons make up the subject matter of much of the study of labor economics and labor relations, the focus is usually on either trend analysis or current wages under prevailing market conditions. (Ostry & Zaidi, 1979) Internal wage structures are frequently described in terms of their relationship to significant "other" wages, that is, wages external to the firm or occupational group that have a competitive or determining relationship. (Bloom & Northrup, 1981)

The research undertaken in this study is based on these sources. There is, however, no similar study in the literature reviewed that deals with the phenomenon of an internal wage structure or substructure developing from supply and demand constraints governed by both collective and individual bargaining. The integration of new forms of labor with previously established compensation practices is normally conducted through collective bargaining via means of altered wage schedules or the creation of new wage schedules. The parties to the collective bargaining process establish the wage structure. Labor supply is provided at an established cost. The unique feature of the current research is the extent to which collective bargaining defined a "range" for labor costs and allowed labor supply in the form of individual vocational education teachers to bargain within this range.

This research focusses on characteristics that may be associated with wage or salary levels such as occupational background, trade training and experience, competing wages, age, sex and location. These quantitative measures were selected because they had either "market force" relationships to employment and therefore, earnings, or "legislative" relationships in that they were defined in statutes (provincial and federal), regulations (provincial, federal, university), collective agreements, or "social and demographic" relationships.

While these characteristics are used in this study in the form of supply and demand constraints, they have been used in previous studies conducted in Alberta for other purposes. Dibski (1970) found age, sex, training, experience and competing wages as significantly associated with returns to investment in his study of private monetary returns to successively higher levels of teacher education for different types of subjects in Alberta. In this study, returns to investment were partially measured by an experience/education earnings profile in which Alberta teacher salaries were derived by averaging all salary agreements for the year 1968/69.

Wallace (1979) also applied a human capital approach in his study of private monetary returns to vocational education teacher training in Alberta. This research studied four selected trade occupations defined as sex-related; automotive mechanics and construction electricians (male) and senior stenographers and beauticians (female). Occupational background, sex, age, and amount of training were, among other variables, found to be significantly related to returns to investment. The latter were measured by averaging 1968/69 salary schedules for vocational education teachers, "academic" teachers and professional engineers. The distinction between the average salary scales for vocational and academic teachers was made by comparing salary levels in the twenty-seven 1968/69 salary agreements. The researcher found that investment decisions leading to a three year university program in vocational education were the best alternative for candidates from all four occupational backgrounds.

The research being undertaken in this study does not examine the human capital models used by both Dibski (1970) and Wallace (1979).

> The central thesis of the human capital view of education (and of manpower training, job search, migration, etc.) is the idea that people voluntarily undertake additional education, at a cost to themselves, not for the sake of

> the enjoyment of the process itself (consumption), but in anticipation of future pecuniary (and non-pecuniary) gains. Human-capital theorists do not deny that education has a consumption component, and some even take it into account in their computations, but, for the most part, it is the future-oriented investment aspects which have been stressed in the analyses. (Ostry & Zaidi, p. 130)

The current research can be distinguished from the human capital approach in that the investment decision has already been made and its results in the form of university training are manifested by the salary category in which individual vocational education teachers were placed upon initial employment. As well, actual earnings of vocational education teachers at the time of initial employment, rather than projected hypothetical earnings are treated as the central variable. The research is cross-sectional in that it attempts to determine relationships between actual initial wage levels and supply and demand constraints in each year of a twenty-two year time period. The previous research used assumed salary levels in only one year and projected growth rates beyond that year. Finally, the focus of this research is on the post-investment initial return, i.e., the wage or salary level received and its relationship to the labor market as it existed at the time.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

Introduction

A review of the related literature was undertaken in the previous chapter. In this chapter the design of the research and its methodology are described under the following headings: Individual Earnings, Selection of the Research Population, Data Collection, Instrumentation, Pilot Test, Preparation and Distribution, Description of the Questionnaire Items, and Treatment of the Data.

Individual Earnings

Determination of the need for the study was made in consultation with members of the executive staff of the Teacher Welfare Program Area of The Alberta Teachers' Association and the researcher's thesis advisor. During these consultations it became evident that while descriptive material was readily available in the form of documentation described in the previous chapter, the salary earnings of individual vocational education teachers had not been the subject of previous research or inquiry.

Selection of the Research Population

It was ascertained that the only agency capable of providing a listing of all vocational education teachers employed by Alberta school jurisdictions was Alberta Education. Telephone contact with Mr. A.A. Day, Associate Director of Curriculum, Industrial Education, Alberta Education was made in September, 1985. A request was made of Mr. Day to furnish the researcher with a list of vocational education teachers who were employed in the secondary schools of the province. After explaining to Mr. Day how this list was to be used, the request was readily granted.

In a memo appended to the list, Mr. Day noted that although the computer printout was dated March, 1985 it was based on data obtained for the 1983/84 school year and that Alberta Education was not maintaining a listing of the type provided beyond that date. The listing was headed, "Vocational Education Teachers by Subject Area, 83-84". It provided the names, schools and school jurisdictions of teachers within an alphabetical classification of subject areas commencing with "Autobody" and ending with "Welding". The list did not contain the level of instruction provided by the named teachers within each vocational education subject area.

The researcher was able to identify the names of certain teachers who appeared in the vocational education listing despite the fact that they were industrial education teachers with assignments at the 10, 20, 30 levels. Telephone contact with these individuals confirmed that during the 1983/84 school year they were not teaching vocational education subjects at the 12, 22, 32, or 15, 25, 35 levels. During that school year they were instructing Industrial Education courses at the 10, 20, 30 levels. The rationale for their names appearing on the list related to the funding formula for vocational education.

> Alberta Education may fund 12 level courses even if offered in approved Industrial Education 10/20/30 laboratories, provided that the school board has a process whereby the students can proceed to the 22/32 levels in vocational schools within their own jurisdictions or by agreements with jurisdictions where the senior level courses are offered. (Alberta Education, 1985, p. 70)

Further inquiry revealed that the listing was based on school grant requirements and that no agency kept a record of vocational education teachers whose assignments fell exclusively within the 12, 22, 32, 15, 25, 35 series of courses. Such an exclusive listing for any one school year would have eliminated the names of teachers who had been engaged to teach vocational education subjects at some point in the past, but who during the specific listing year had been engaged in other assignments. The Alberta Education listing for 1983/84 had the advantage of including some Industrial Education teachers who may have had Vocational Education qualifications at the time they commenced teaching in Alberta, or who may have acquired such credentials subsequent to their initial employment. The decision was made to use this listing as the research population for the study.

Data Collection

Contact with individual vocational education teachers required that the researcher have access to a current address list. Because of the sensitive nature of some of the data (individual salaries), contact at home addresses was seen as preferable to the use of work location addresses. Since all of these teachers were active members of the ATA and were engaged under collective agreements between the Association and their employing school boards, the researcher requested the assistance of the Association in the conduct of the research (Appendix B). The request for access to the Associations' address lists, collective agreement files, historical files, and postal box was submitted, along with a request for financial and technical assistance and a letter of endorsement. Due to the nature of the research and the necessary involvement of the Association, the research design was presented to its table officers for consideration. Their decision to support all phases of the research expedited its conduct (Appendix C).

The decision to use a questionnaire and the procedures for its design and use are fully described in the section titled, "Instrumentation". A covering letter accompanied the questionnaire. Its purpose was to a) explain the purpose of the study, b) briefly describe the role of respondents, and c) establish a deadline date for return of the completed instrument. Appendices D and E contain the letter of endorsement and covering letter.

Instrumentation

The use of a questionnaire was necessary to obtain individual salary and experiential information from each vocational education teacher. The Alberta Education list of vocational education teachers for 1983/84 contained the names of 627 individuals employed by public and separate school jurisdictions. This list was reduced to 544 names after it was cross-referenced with the current (1985/86) identification number and home mailing address in the Association's computerized master file. The difference between the 627 number listed in 1983/84 and the 544 still listed in 1985/86 was attributed to resignation and retirement during the two ensuing years.

A review of selected references on research instruments was conducted to determine the advantages and disadvantages of this procedure as well as to assist with design features. The consensus view held that the questionnaire approach facilitated a) reproduction of the instrument, b) contact with individual members of the research population, c) data collection for purposes of analysis, and d) reduced bias that might enter into other survey techniques such as individual interviews.

The disadvantages most frequently noted were a) the potential for misinterpretation of questions or statements by the respondent, thus reducing validity and b) the possibility of a low rate of return due to the length or complexity of the instrument or its failure to motivate response. (Platek, Pierre-Pierre & Stevens, 1985)

Consultations with the researcher's thesis advisor and with executive staff members of The Alberta Teachers' Association were undertaken during the developmental stage of the questionnaire. A review of collective agreement provisions governing the treatment of vocational education teachers was also conducted to determine the vocabulary used throughout the period 1962 to 1983. A review of the Association's historical files was also undertaken to verify whether the language used in collective agreements had been commonly used in publications and reports. The purpose of these inquiries was to achieve a questionnaire design providing for a) non-ambiguous statements, b) question sequencing in terms the respondents would understand, c) minimal response time and d) validity.

Pilot Test

Mehrens and Lehman (1984) explain content validity as,

> typically determined by a thorough inspection of the items. Each item is judged on whether or not it represents the specified domain. Although a detailed, systematic, critical inspection of the test items is probably the single best way to determine content validity, such inspection

> does have some drawbacks. It is subjective and does not yield any quantitative expression. Two persons--whether or not they have the same understanding of the content domain--may well make different judgments about the match of the items to the domain. (pp. 290-291)

They further caution the researcher to avoid confusing content validity with face validity.

> Face validity is whether the test looks valid "on the face of it." That is, would untrained people who look at or take the test be likely to think the test is measuring what its author claims? Face validity often is a desirable feature of a test in the sense that it useful from a public acceptance standpoint. If a test appears irrelevant, examinees may not take the test seriously, or potential users may not consider the results useful. (p. 295)

The researcher sought the cooperation of two vocational education teachers and two executive staff members of The Alberta Teachers' Association in preparing an independent critique of each of the items in the questionnaire. One of the vocational education teachers had been employed by a large urban district at the time the vocational education issue had been negotiated (1962). The other was more recently employed in a small urban district. Both executive staff members had been directly involved in the negotiations of several collective agreements containing vocational education provisions. Their suggestions for improvement added strength to the research instrument. The draft items were finally scrutinized by the researcher and advisor before being integrated into the questionnaire.

Preparation and Distribution

The questionnaire was typeset and printed with the assistance of clerical and intermediate staff of The Alberta Teachers' Association. Mailing address labels provided by the Association were affixed to envelopes containing the questionnaire, covering letter from the researcher, letter of endorsement from the Association's Executive Secretary, Dr. B.T. Keeler, and a self-addressed, postage paid return envelope. Mailing of all 544 questionnaires took place during the second week of October, 1986 with a deadline for return of November 14, 1986. The confidential nature of the data requested precluded codification of the questionnaire or the return envelopes. No follow up procedures were planned.

Description of the Questionnaire Items

The questionnaire is reproduced in Appendix F. This section describes the items and the rationale for their inclusion.

Item 1-"Year of Birth". A subproblem of this research was to determine the relationship between age and extent of compensation. The calculation of age at the time of initial employment as a vocational education teacher was provided by comparing this item with Item 3.

Item 2 - "Sex". A subproblem of this research was to determine the relationship between sex and extent of compensation. This item was also included to determine the extent to which males and females were represented in particular vocational trades and subject areas.

Item 3 - "Year of First Employment as a Vocational Education Teacher in Alberta". In addition to the use noted under Item 1, this item was used as the cross-reference for both the salary schedules and other collective agreement provisions in effect at the time of initial vocational employment of each respondent. In conjunction with Item 14 (salary category at time of initial employment), and Item 4 (initial employing school board), the researcher was able to determine the base wage in effect at the time of initial employment. Finally, the year of employment data enabled a determination of the relationship between compensation and time of employment.

Item 4 - "Initial School Board". This item was necessary to determine the relationship between compensation and location.

Item 5 - "Teaching Experience in Alberta Prior to Initial Vocational Employment". This item provided information about the make-up of the vocational education teaching force. It indicated the extent to which Alberta vocational education teachers were novices to teaching at the time of initial employment.

Item 6 - "Length of Previous Alberta Teaching Experience". This item enabled the researcher to adjust the base rate salary for these teachers to compensate for previous teaching experience.

Item 7 - "Trade/Vocational Experience Pre-Teaching". A subproblem of the research was to determine the relationship between amount and type of previous experience and compensation.

Item 8 - "Salary Recognition". This item was included to determine whether or not salary recognition was forthcoming and to enable the respondent to reflect upon the various methods that were used at the time of his/her initial employment. It was used as a "cue" to prepare the respondent to answer questions 9 and 10.

Item 9 - "Allowance/Bonus". In that some collective agreements made provision for compensation in a form other than increments (Item 10), it was necessary to seek out this information in an open-ended format. It was recognized that error was possible, but no other format seemed appropriate. This item and Item 10 together determined the extent of advance placement of vocational education teachers.

Item 10 - "Increments". All of the subproblems of this research were related to compensation. Items 9 and 10 together provided the researcher with an index measure indicating the relationship between Advance Placement and Base Wage. For example, a respondent may have indicated that he/she was employed in 1971 by school board "X" and that his/her salary category at that time was "4". No previous teaching experience was indicated. The teacher was granted five increments for previous trade or vocational experience. The relevant collective agreement was then checked to determine the Base Wage and the monetary value of five increments. If a category "4" teacher earned $12,000 (no experience) and the respondent's five increments of Advance Placement yielded $16,200, the index measure was determined by dividing $16,200 by 12,000 yielding 1.35. The respondent earned 35 percent more than his/her non-vocational counterpart. In a like manner, if a respondent earned a bonus or allowance in Item 9, the amount was added to the Base Wage to determine the Initial Wage and subsequent index measure. In some cases, respondents earned both allowances and increments.

Item 11 - "Journeyman's Certificate at Time of Initial Vocational Assignment". Alberta Education regulations require journeyman's certification or its equivalent to teach vocational education subjects as defined in this research. This item provided verification of that regulation.

Item 12 - "Trade Area Certification". The type and extent of trade certification were determined by this question. It provided a check against Item 7 (trade experience) in case of ambiguity as to the nature of occupational experience. The check list was based on the Manpower Development Act.

Item 13 - "Vocational Subject Areas". This item was included as a proxy variable for labor demand. It made it possible to measure the extent to which compensation was related to a particular teaching area. Along with Item 4 (school board) it also provided a measure of the extent to which the respondent population approximated the population of the survey.

Item 14 - "Initial Salary Category". The use of this item was explained under Items 3 and 10.

Item 15 - "Current Salary Category". This item was included to determine the extent to which respondents had improved their professional training since their initial employment as vocational education teachers.

Treatment of the Data

Each questionnaire was reviewed to assure that all questions were answered and to confirm that responses provided the necessary information for further processing. Incomplete questionnaires were not used in subsequent analyses.

The researcher sought the assistance of Dr. D. Richards, Department of Educational Administration, Faculty of Education, University of Alberta in the construction of an encoding scheme that would lend itself to statistical analysis and in the selection of statistical programs that would best apply to the subproblems identified in the research proposal.

Prior to encoding the questionnaires each response was compared with its applicable collective agreement, that is, the agreement in force at the time the respondent was initially employed as a vocational education teacher, to determine the appropriate base wage, extent of advance placement and the resultant ratio translated as an index number.

In that the questionnaires had not been constructed to allow for direct data entry into a computer file, a uniform coding procedure was applied to each response and the raw data were then keypunched for file preparation. The 15 item questionnaire was translated into a list of 30 coded variables for each respondent. While this procedure took much time it allowed for careful scrutiny of the responses and it facilitated later manipulation of the data.

The Statistical Package for the Social Sciences "X", available through University of Alberta Computing Services provided three programs judged as appropriate to the data analysis. These were subprograms FREQUENCIES, ONEWAY, and CORRELATION.

The FREQUENCIES subprogram reports the frequency of occurrence of each unique value detected for a variable. Raw counts, percentage of total and cumulative percentages are produced along with measures of central tendency and variability. These measures were used to describe the survey population as well as to help determine what subsequent groupings were required for the application of the next subprogram.

ONEWAY is a subprogram that computes an extensive variety of one-way analysis of variance and tests of significance.

> Analysis of variance (ANOVA) determines whether there are significant differences among the means of three or more groups of subjects. If only two groups are being compared, a single t test can be used to decide if the difference between the group means is significant; however, if many groups are being compared, the time and effort spent in performing the required number of t tests can be a burden. . . . In such cases, one ANOVA test can determine whether any significant difference exists among any of the group means. . . . Application of a one-way ANOVA means that the test is being conducted to find out whether significant differences in means are present for one dependent (criterion) variable that is influenced by a single independent variable. (Goehring, 1981, pp. 268-269)

The one-way analysis of variance calculations yield a statistical value called F. This value can be interpreted as providing a measure of the probability that the variance between more than two groups is some multiple of the population variance. F does not indicate the location of the difference, only its existence. Comparisons of individual means are conducted with the Scheffé test. A particular advantage of the Scheffé method applicable to this research is its ability to test differences between means of groups with unequal N's.

The ONEWAY subprogram applies the appropriate test of significance to grouped data, that is, the t test to comparisons of means between two groups and the F test to more than two groups. It further specifies the level at which F is significant and the appropriate test comparisons among group means. At this stage of the analysis the dependent variable was the index measure of the ratio of initial wage or advance placement wage to base wage. The independent variables were those identified in the subproblems of the research, namely: age, sex, location, time of employment, type of trade background, amount of trade experience and initial vocational teaching assignment.

The CORRELATION subprogram was used to measure the relationship between the dependent variable and the independent variables as well as between dependent variables. For example, this procedure was useful in helping to explain whether relationships between dependent variables were significant, and, if so, whether statistical conclusions had to be modified.

Finally, external wage rate data were compared with the initial wages rates of the respondents to determine the extent of competitiveness. The external wage data were taken from an annual publication of the Government of Alberta that has reported both hourly and monthly wage rates in various occupations within Alberta throughout the period 1962 to 1983 (Alberta Bureau of Statistics, 1962-1980); Alberta Pay and Benefits, 1981-1983). While not all occupations reported by vocational education teachers were included in these annual surveys throughout this time period, it was decided by the researcher there were sufficient data to provide comparisons in most cases. The advantage of restricting comparisons to the one source was that the survey techniques used in the Alberta wage rate survey were applied in a uniform manner to all occupations. Sources of wage rates not covered in the Alberta survey did not cover the entire period nor did they provide any uniformity in measurement technique. All external wage rates were reported as monthly rates and the internal wages of vocational education teachers were converted to monthly rates for purposes of comparison. This procedure was relatively easy in that Alberta teacher salaries as negotiated in collective agreements were per annum and were paid on a 1/12 basis.

Competitiveness was limited to comparisons for "regular" or "straight-time wages", excluding overtime and other compensation differentials. Benefit differentials for insurance and government mandated programs were excluded from the calculations. So as to account for the normally longer working year of tradespeople versus teachers, an eleven month external wage earnings was attributed to the Alberta survey occupations.

CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

Introduction

The previous chapter dealt with the research design and methodology of the study. In this chapter the data acquired from respondents to the questionnaire are set forth and analyzed under the following headings: Level of Response, Profile of the Respondents, and Analysis of the Sub-Problems.

Level of Response

Responses were received from 234 of the 544 teachers named on the Alberta Education 1983/84 vocational education subject area listing. The return rate of 43.0% was comprised of two distinct groups of teachers; those who met the definition of vocational education teacher for purposes of the study and those who defined themselves as industrial arts teachers. The former group represented 213 respondents or 91.0% of the return and the latter group consisted of 21 respondents or 9.0% of the return. Five additional questionnaires were received after the data analysis was underway and these were not included in the study.

The inclusion of industrial arts teachers on the Alberta Education Vocational Education Subject Area listing was explained in Chapter III, pages 43 and 44. In that these teachers did not meet the criteria established for inclusion in the study, the questionnaires were not used in the analysis thus, reducing the number of usable responses to 213 or 39.2% of the total Alberta Education listing. It was likely that these respondents represented a higher proportion than 39.2% of the population of vocational education teachers employed in the 1983/84 school year, but there was no method available to validate this assumption. Nonetheless, the rate of return was sufficient for the study in view of a) a questionnaire technique wherein response levels from an entire population, "only rarely . . . reach the 40 percent level." (Travers, 1964, p. 297) and b) the extent to which the respondents were representative of the survey population.

Table 3 contains three measures of comparison between the research population and respondents. The Alberta Education listing was limited to sex (by name), location (employing school board) and subject area. These were the only population characteristics that could be compared with respondent characteristics. There was no difference between the sex distribution of the population and that of the respondents. The relatively higher proportion of respondents in urban locations and the relatively lower proportion of respondents in rural locations was attributable to the comparison made between location of employment in 1983/84 and initial employment location. The 1983/84 employment distribution, by location, was not constant through the period under study. The vast majority of vocational education teachers who commenced employment in the 1960's had only urban or small urban locations available to them because rural school boards generally introduced comprehensive high school programs only after urban boards had constructed their facilities. Therefore, it was not surprising to discover a differential that reflected the development of vocational education programs from 1962 to 1983. Subject area comparison revealed

Table 3

Frequency and Percentage Frequency Distribution of Respondents Relative to the Population on Selected Individual Variables

	Population N=544		Respondents N=213		Percent Difference
	f	%	f	%	
Individual Variable					
Sex					
Males	457	84.0	179	84.0	0.0
Females	87	16.0	34	16.0	0.0
Location[1,2]					
Urban	296	54.4	136	63.8	+9.4
Small Urban	79	14.5	29	13.6	-0.9
Rural	169	31.1	48	22.5	-8.6
Subject Area[1]					
Autobody	16	2.9	8	3.8	+0.9
Beauty Culture	51	9.4	24	11.3	+1.9
Building Construction	69	12.7	35	16.4	+3.7
Drafting	104	19.1	29	13.6	-5.5
Electricity/Electronics	41	7.5	23	10.8	+3.3
Food Preparation	20	3.7	12	5.6	+1.9
Forestry	1	0.2	0	0.0	-0.2
Graphic Communications	29	5.3	4	1.9	-3.4
Health Services	11	2.0	5	2.4	+0.4
Horticulture	8	1.5	5	2.4	+0.9
Mechanics	102	18.8	46	21.6	+2.8
Mining	1	0.2	0	0.0	-0.2
Performing Arts	10	1.8	2	0.9	-0.9
Piping	4	0.7	3	1.4	-0.7
Practical Arts	23	4.2	0	0.0	-4.2
Visual Communications	25	4.6	6	2.8	-1.8
Welding	29	5.3	11	5.2	-0.1

[1] Population figures are for 1983/84. Respondent figures are at time of initial employment.

[2] Urban: $\geq$ 200,000 Small Urban: $\geq$ 20,000, < 200,000 Rural: $\leq$ 20,000

a range of only +3.7% to -5.5% between the 1983/84 subjects taught by the population and those taught by respondents when initially employed. "Practical Arts", although included on the Alberta Education listing as a vocational education subject was a relatively new curriculum and was not offered at course levels available for vocational education funding. However, some of the teachers were employed in other vocational education areas.

Profile of the Respondents

The frequency and percentage frequency of respondents to the items of the questionnaire related to the sub-problems of the study are reported in this section. Measures of central tendency are also indicated, where appropriate. Sex, location and subject area were dealt with in the preceding section.

Age

Table 4 contains the frequency and percentage frequency distribution of the age of respondents at the time of initial employment as vocational education teachers. The age ranged from 22 to 49 years, the mean age was 34.2 years and the median age was 33.0 years.

Year of Initial Employment as a Vocational Education Teacher

Table 5 contains the frequency and percentage frequency distribution of the school years in which respondents were initially employed as vocational education teachers. The years 1962 to 1983 were defined as parameters for this study and all respondents indicated initial employment within the time frame.

Table 4

Frequency and Percentage Frequency Distribution of Age of Respondents at the Time of Initial Employment

Age (N=213)	f	%
22	1	.5
23	3	1.4
24	2	.9
25	6	2.8
26	5	2.3
27	8	3.8
28	7	3.3
29	15	7.0
30	14	6.6
31	16	7.5
32	17	8.0
33	15	7.0
34	13	6.1
35	14	6.6
36	8	3.8
37	8	3.8
38	9	4.2
40	10	4.7
41	5	2.3
42	7	3.3
43	4	1.9
44	7	3.3
45	1	.5
46	5	2.3
47	3	1.4
49	1	.5

Mean = 34.2
Median = 33.0

Table 5

Frequency and Percentage Frequency Distribution of Respondents' Year of Initial Employment

Year of Initial Employment (N=213)	f	%
1962	5	2.3
63	13	6.1
64	7	3.3
65	8	3.8
66	8	3.8
67	9	4.2
68	8	3.8
69	20	9.4
70	14	6.6
71	6	2.8
72	6	2.8
73	1	.5
74	5	2.3
75	9	4.2
76	11	5.2
77	3	1.4
78	8	3.8
79	13	6.1
80	17	8.0
81	15	7.0
82	14	6.6
83	13	6.1

Previous Teaching Experience

Table 6 contains the frequency and percentage frequency distribution of the respondents' teaching experience in Alberta prior to employment as vocational education teachers and a breakdown of the number of years of experience indicated by the respondents. Of the 213 respondents, 41 or 19.2% had previous teaching experience. Previous teaching experience in Alberta ranged from 1 to 19 years with an associated mean of 6.2 years and a median of 6.0 years.

Industrial or Trade Experience

Table 7 contains the frequency and percentage frequency distribution of the respondents' industrial or trade experience prior to initial employment as vocational education teachers. The descriptors were those used by the respondents. The majority, 199 or 93.4%, indicated a single industrial or trade background, while the remaining 14 respondents or 6.4% had experience in two or more occupations. The single largest occupational background of respondents was that of Mechanic, 16.9%, followed by Carpenter, 12.7%, Beautician/Barber, 11.3% and Draftsman, 10.3%.

Journeyman's Certificate or Equivalent

The frequency and percentage frequency distribution of the respondent's status with regard to journeyman's certification or its equivalent are shown in Table 8. Journeyman status as defined by the General Regulations of the Alberta Manpower Development Act applied to 22 of the 32 occupations reported by respondents. Therefore, 168 or 78.9% of the respondents held at least one certificate attesting to

Table 6

Frequency and Percentage Frequency Distribution of Previous Teaching Experience in Alberta and Years of Previous Teaching Experience

Characteristic	f	%
Previous Teaching Experience (N=213)		
Yes	41	19.2
No	172	80.8
Years of Previous Teaching Experience (N=41)		
1-3	17	41.6
4-6	8	19.5
7-9	7	17.1
10-19	9	21.8

Mean = 6.2
Median = 6.0

Table 7

Frequency and Percentage Frequency Distribution of Respondents' Type of Industrial or Trade Experience Prior to Initial Employment as Vocational Education Teachers

Type of Industrial or Trade Experience (N=213)	f	%
Mechanic	36	16.9
Carpenter	27	12.7
Barber/Beautician/Hairstylist	24	11.3
Welder	7	3.3
Cook	11	5.2
Electronics Technician	11	5.2
Electrician	9	4.2
Autobody Mechanic	7	3.3
Welder	7	3.3
Machinist	6	2.8
Commercial Artist	6	2.8
Horticulturalist	5	2.3
Nurse	4	1.9
Printer	3	1.4
Heavy Duty Mechanic/Mechanic	3	1.4
Aircraft Maintenance Mechanic	2	*
Architect	2	
Partsman	2	
T.V. Producer	2	
Engineer	2	
Heavy Duty Mechanic/Mechanic/Welder/Electronic Technician	2	
Heavy Duty Mechanic	1	**
Sheet Metal Worker	1	
Plumber	1	
Occupational Therapist	1	
Tool & Die Maker	1	
Mechanical Engineering Technician	1	
Garment Worker	1	
Communications Electrician	1	
Appliance Serviceman	1	
Pipefitter	1	
Building Maintenance Mechanic	1	
Autobody Mechanic/Mechanic/Welder	1	
Steel Fitter/Welder/Boilermaker	1	
Carpenter/Sheet Metal Worker/Refrigeration Mechanic	1	
Carpenter/Cabinetmaker	1	
Draftsman/Electronic Technician	1	
Draftsman/Photographer	1	
Steamfitter/Gas Fitter	1	

Table 7 (continued)

Type of Industrial or Trade Experience (N=213)	f	%
Aircraft Maintenance Mechanic/Auto Partsman/ Auto Repairman	1	
Railway Car Carpenter	1	

* and below = .9
** and below = .5

journeyman's status. The remaining 45 or 21.1% held equivalency status as adjudged by Alberta Education consultants. Only 23 or 10.8% of the respondents held a second certificate or equivalency, and a third certificate or equivalency was held by just five respondents or 2.3%. The single largest certification was that of Motor Mechanic, 18.8% followed by Carpenter, 14.1%, Beautician, 11.3% and Draftsman (equivalency), 10.8%.

Initial Vocational Assignment

Table 9 contains the frequency and percentage frequency distribution of the respondents' initial vocational assignment. Two hundred and ten (210) or 98.6% commenced employment in at least one vocational area recognized by the Program of Studies for Senior High Schools (1983). The single largest group consisted of those who taught Mechanics, 21.1%, followed by Building Construction, 16.0%, Drafting, 13.6%, Beauty Culture, 11.3%, and Electricity/Electronics, 10.8%. Only 33 of the 213 respondents or 15.5% commenced their vocational education teaching careers in at least two vocational education areas and just

Table 8

Frequency and Percentage Frequency Distribution of Respondents' Journeyman Certification or Equivalent

Characteristic	f	%
First[1] Journeyman's Certificate or Equivalent* (N=213)		
Motor Mechanic	40	18.8
Carpenter	30	14.1
Beautician	24	11.3
Draftsman*	23	10.8
Electronics Technician	15	7.0
Cook	11	5.2
Autobody Mechanic	7	3.3
Welder	7	3.3
Electrician	7	3.3
Commercial Artist*	6	2.8
Machinist	5	2.3
Horticulturalist*	5	2.3
Heavy Duty Mechanic	4	1.9
Nurse*	4	1.9
Printing and Graphic Arts Craftsman	3	1.4
Architectural Technologist*	2	.9
Partsman	2	.9
T.V. Production*	2	.9
Water Well Driller	2	.9
Communications Electrician	2	.9
Boilermaker	1	.5
Sheet Metal Worker	1	.5
Aircraft Maintenance Engineer*	1	.5
Plumber	1	.5
Occupational Therapist*	1	.5
Tool & Die Maker	1	.5
Gasfitter	1	.5
Refrigeration Mechanic	1	.5
Mechanical Engineering Technician	1	.5
Stage Designer*	1	.5
Appliance Serviceman	1	.5
Building Maintenance*	1	.5

[1] First Journeyman's Certificate or Equivalent was that identified by the researcher as being most closely related to the respondents' initial teaching assignment.

* Equivalent

Table 8 (continued)

Characteristic	f	%
Second Journeyman's Certificate or Equivalent* (N=23)		
Motor Mechanic	7	3.3
Heavy Duty Mechanic	4	1.9
Heavy Equipment Operator	2	.9
Autobody Mechanic	1	.5
Welder	1	.5
Draftsman*	1	.5
Millwright	1	.5
Steel Fabricator	1	.5
Gasfitter	1	.5
Refrigeration Mechanic	1	.5
Communications Electrician	1	.5
Stage Designer*	1	.5
Railway Car Builder*	1	.5
Third Journeyman's Certificate or Equivalent* (N=5)		
Welder	3	1.4
Sheet Metal Worker	1	.5
Agricultural Mechanic	1	.5

Table 9

Frequency and Percentage Frequency Distribution of Respondents' Initial Vocational Education Teaching Assignments

Characteristic	f	%
First or Only Subject Area (N=213)		
Mechanics	45	21.1
Building Construction	34	16.0
Drafting	29	13.6
Beauty Culture	24	11.3
Electricity/Electronics	23	10.8
Food Preparation	11	5.2
Welding	11	5.2
Autobody	8	3.8
Visual Communications	6	2.8
Health Services	5	2.3
Horticulture	5	2.3
Graphic Arts	4	1.9
Pipes	3	1.4
Performing Arts	2	.9
Aircraft Maintenance	1	.5
Commercial Sewing	1	.5
Building Maintenance	1	.5
Second Subject Area (N=33)		
Drafting	11	5.2
Welding	6	2.8
Machine Shop	6	2.8
Mechanics	5	2.3
Graphic Arts	3	1.4
Sheet Metal	2	.9
Third Subject Area (N=5)		
Machine Shop	2	.9
Sheet Metal	2	.9
Welding	1	.5

five teachers or 2.3% had three distinct assignments.

Total Industrial/Trade Years

Table 10 contains the frequency and percentage frequency distribution of the respondents' post-apprenticeship industrial/trade experience gained prior to employment as vocational education teachers. Trade experience for all respondents ranged from 0-28 years. Of the 205 who had one or more years of industrial/trade experience, the mean was 8.7 years and the median 7.0 years of industrial/trade experience before employment as vocational education teachers.

Salary Recognition

Table 11 contains two types of data: 1) the frequency and percentage frequency distribution of the respondents' salary recognition, and 2) the form of this recognition. Salary recognition for previous industrial or trade experience was obtained by 167 of the 213 respondents or 78.4%. Only 13 of of the 167 respondents who obtained salary recognition also received recognition via advance placement. The latter was the most common form of salary recognition as it was reported by 162 of the 167 respondents or 97.0% of those who obtained salary recognition for prior industrial or trade experience. The mean number of increments obtained was 5.7 years with a corresponding median of 6 years.

Initial Salary Category

Table 12 contains the frequency and percentage frequency distribution of the respondents' salary category at the time they began their professional career as vocational education teachers. Each category

Table 10

Frequency and Percentage Frequency Distribution of Respondents' Total Number of Years of Experience in Industry or Trade After Apprenticeship

Number of Years of Previous Industrial or Trade Experience (N=213)	f	%
0	8	3.8
1	9	4.2
2	18	8.5
3	12	5.6
4	19	8.9
5	24	11.3
6	10	4.7
7	14	6.6
8	13	6.1
9	2	.9
10	12	5.6
11	7	3.3
12	10	4.7
13	11	5.2
14	10	4.7
15	13	6.1
16	3	1.4
17	2	.9
18	3	1.4
19	2	.9
20	3	1.4
22	3	1.4
23	1	.5
25	2	.9
28	2	.9

[1] Discounting the 8 respondents with no experience, the N of 205 has a Mean of 8.7 years and a Median of 7.0 years.

Table 11

Frequency and Percentage Frequency Distribution of Respondents' Salary Recognition and Method of Recognition

Characteristic	f	%
Salary Recognition (N=213)		
Yes	167	78.4
No	46	21.6
Allowance (N=167)		
Yes	13	7.8
No	154	92.2
Increments (N=162)		
Number of Increments		
1	10	6.2
2	10	6.2
3	9	5.6
4	25	15.4
5	25	15.4
6	22	13.6
7	26	16.1
8	13	8.0
9	6	3.7
10	11	6.7
11	5	8.1

Mean = 5.7
Median = 6

Table 12

Frequency and Percentage Frequency Distribution of Respondents' Initial Salary Category

Salary Category (N=213)	f	%
1	3	1.4
2	55	25.8
3	31	14.6
4	92	43.2
5	17	8.0
6	15	7.0

in this table represents a year of university education beyond grade 12. These data do not reflect the current levels of post-secondary education of these vocational education teachers. The single largest group of respondents, 92 or 43.2% commenced employment in Category 4 followed by those who commenced employment in Category 2, 55 or 25.8% and Category 3, 31 or 14.6%.

Index of Respondents' Initial Wage to Collective Agreement Base Wage

The data provided in Tables 3, 5, 6, 11 and 12 were used to construct an index of the relationship between each respondent's initial wage as a vocational education teacher and the corresponding base wage for teachers as determined by the relevant collective agreement in force at the time of initial employment. Base wage and initial wage data for most respondents are reported in Table 28, pages 93 to 97, and specific examples of index calculations are provided in Table 13. In each case the base wage is the starting salary of a teacher in the

Table 13

Examples of Index Calculations

	Salary Recognition	Base Wage	Allowance	Increments	Initial Wage	Index
Respondent						
A[1]	No	$4500 +	None +	None =	$4500	.000
B	Yes	$3500 +	$750.00 +	None =	$4250	.214
C	Yes	$3800 +	$700.00 +	4x$300.00 = $1200.00 =	$5700	.500
D	Yes	$12000 +	None +	5x$1000.00 = $5000.00 =	$17000	.417

[1] In the case of a respondent with previous teaching experience the Base Wage was adjusted to take into account the number of increments earned for such previous experience.

same: 1) salary category, 2) initial year of employment, and 3) location as the respondent. The initial wage is the wage or salary earned by the respondent in his/her first year of employment as a vocational education teacher. If no salary recognition was obtained for previous industrial or trade experience, the initial wage is equal to the base wage and the index figure of .000 indicates no percentage variation. If salary recognition in the form of advance placement was obtained, the initial wage is in excess of the base wage and the index figure exceeds .000. Thus, the index is the measure of the relationship between the respondent's initial wage and the corresponding base wage. When multiplied by 100 each index figure is converted to a percentage relationship.

Analysis of the Sub-Problems[1]

Sub-Problem 1

> To what extent did the initial wage rates of vocational education teachers deviate from the base wage rates of other teachers in the years 1962 to 1983?

As reported in Table 11, 167 of the 213 respondents obtained salary recognition in the form of allowances and/or advance placement. The extent to which these forms of additional compensation related to base wage rates was measured by the index explained in detail in Table 13, page 72.

Table 14 contains the index mean for all respondents and for those who received salary recognition. The average initial wage rate of all respondents was 27.4% higher than the average base rate (N=213). The average initial wage rate of respondents who received salary recognition was 35.0% higher than the average base rate (N=167).

Table 14

Measures of Central Tendency for the Relationship Between Initial Wage Rate of Vocational Education Teachers and Base Wage Rate (Index)

N	Index Range	Mean	Median
213	.000 - .689	.274	.287
167	.041 - .689	.350	.347

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[1] Levels of Significance: All statistical procedures used in this section that involved the determination of levels of significance were conducted at the .05 level. The exception was the Scheffé procedure which, due to its rigorous procedures, permitted the use of the .10 level of significance. (Ferguson, 1966, p. 297)

Sub-Problem 2

> To what extent was industrial or trade experience before entry into teaching associated with any initial wage rate variation?

Using the index measure as the dependent variable, a one-way analysis of variance was conducted to determine whether any significant difference existed between the index means for the previous industrial or trade experience of a) all respondents, and b) those who received salary recognition. In both cases the groupings were selected on the basis of five year intervals of previous experience with the exception of the group having no previous experience and no salary recognition and the group having 21 or more years of previous experience.

Table 15 contains the analysis of variance for all respondents. The F value of 22.02 with an associated probability of .00 indicated that at least one difference among the means was significantly different. The Scheffé procedure indicated that the index means for vocational education teachers with 6-10, 11-15, 16-20 and 21-28 years of previous industrial or trade experience were significantly higher than the index means of those having no previous experience and those having 1-5 years of previous experience.

Table 16 contains the analysis of variance for respondents who received salary recognition for previous industrial or trade experience. The F value of 12.64 with an associated probability of .00 indicated at least one significant difference among the index means. The subsequent Scheffé procedure indicated that the index means for vocational education teachers with 6-10, 11-15 and 16-20 years of previous industrial or trade experience were significantly higher than the index mean for vocational education teachers with 1-5 years of previous

Table 15

Oneway Analysis of Variance of Previous Industrial or Trade Experience Classified by Years of Previous Experience of All Respondents (N=213)

Group	Years of Previous Industrial or Trade Experience	N	Mean	S.D.	F	p	Significance Between Groups
1	0	8	.000	.000	22.02	.00	
2	1-5	82	.161	.162			
3	6-10	51	.315	.183			3:1,2
4	11-15	51	.404	.164			4:1,2
5	16-20	13	.423	.117			5:1,2
6	21-28	8	.384	.203			6:1,2

Table 16

Oneway Analysis of Variance of Previous Industrial or Trade Experience Classified by Years of Previous Experience of Respondents With Salary Recognition (N=167)

Group	Years of Previous Industrial or Trade Experience	N	Mean	S.D.	F	p	Significance Between Groups
1	1-5	54	.245	.139	12.64	.00	
2	6-10	44	.365	.143			2:1
3	11-15	48	.429	.132			3:1
4	16-20	13	.423	.117			4:1
5	21-28	8	.384	.203			

experience.

Sub-Problem 3

> To what extent was industrial or trade experience in particular occupations before entry into teaching associated with any initial wage rate variation?

A one-way analysis of variance was conducted to determine whether any significant difference existed between the index means for type of previous industrial or trade experience of a) all respondents and b) those who received salary recognition. In both cases the groupings were selected on the basis of occupations in which five or more respondents had previous industrial or trade experience. This was done so as to prevent comparative variance analysis with an unreasonably low N in any particular cell. Therefore, not all occupational backgrounds were compared.

Table 17 contains the analysis of variance for occupations in which five or more of the respondents reported previous industrial or trade experience prior to entering the teaching profession. The N was reduced to 169 from the total of 213 and the number of occupations in the analysis was reduced to 12 from the listing of 41 single or multi-occupations provided in Table 7. The F value of 2.81 with an associated probability of .00 indicated at least one significant difference among the index means. However, the Scheffé procedure did not produce any significant differences.

Table 18 contains the analysis of variance for occupations in which five or more of the respondents reported both previous industrial or trade experience and salary recognition. The N was reduced to 132 from the total of 167 and the number of occupations in the analysis was

Table 17

Oneway Analysis of Variance of Type of Previous Industrial or Trade Experience Classified by Occupational Backgrounds of Respondents (N=169)

Type of Previous Industrial or Trade Experience	N	Mean	S.D.	F	p	Significance Between Groups
Autobody Mechanic	6	.414	.193	2.81	.00	
Electrician	9	.398	.189			
Mechanic	35	.323	.156			
Beautician	24	.307	.240			
Electronic Technician	11	.283	.176			
Machinist	5	.276	.153			
Commercial Artist	6	.252	.194			
Welder	7	.246	.158			
Draftsman	22	.246	.191			
Carpenter	28	.174	.169			
Cook	11	.168	.159			
Horticulturalist	5	.054	.121			

Table 18

Oneway Analysis of Variance of Type of Previous Industrial or Trade Experience Classified by Occupational Backgrounds of Respondents Who Received Salary Recognition (N=132)

Type of Previous Industrial or Trade Experience	N	Mean	S.D.	F	p	Significance Between Groups
Beautician	17	.433	.157	1.95	.04	
Autobody Mechanic	6	.414	.193			
Electrician	9	.398	.189			
Mechanic	32	.353	.125			
Draftsman	16	.338	.134			
Electronic Technician	10	.311	.157			
Commercial Artist	5	.302	.167			
Welder	6	.287	.125			
Machinist	5	.276	.153			
Carpenter	18	.271	.132			
Cook	8	.231	.139			

reduced to 11 from the profile listing of 41. The F value of 1.95 with an associated probability of .04 indicated at least one significant difference among the index means. The Scheffé procedure did not reveal any differences.

Sub-Problem 4

> To what extent was any initial wage rate variation associated with personal characteristics such as age and sex?

Table 19 contains the one-way analysis of variance conducted to determine any significant differences between the age means of the respondents (N=213). The age range of 22 to 49 years was sub-divided into four categories, each containing intervals of seven years. These categories were selected on the basis of a visual inspection of the data provided in Table 4 in which the frequencies for each age level were reported. The F value of 9.59 with an associated probability of .00 indicated at least one significant difference among the index means. The Scheffé procedure indicated that the index means for the age ranges 29-35, 36-42 and 43-49 were all significantly higher than the index mean for the age group 22-28 and that the index mean for the age group 36-42 was also significantly higher than the index mean for the age group 29-35.

Table 20 contains the analysis of variance of age mean differences for respondents who received salary recognition (N=167). The F value of 7.97 with an associated difference probability of .00 indicated at least one significant difference among the age means. The Scheffé procedure produced a significant difference between the mean for the age group 36-42 relative to those for age groups 22-28 and 29-35.

Table 19

Oneway Analysis of Variance for Age of All Respondents Classified by Age Groupings (N=213)

Group	Age	N	Mean	S.D.	F	p	Significance Between Groups
1	22-28	32	.136	.150	9.59	.00	
2	29-35	104	.266	.189			2:1
3	36-42	56	.359	.204			3:1,2
4	43-49	21	.301	.211			4:1

Table 20

Oneway Analysis of Variance for Age of Respondents Who Received Salary Recognition Classified by Age Groupings (N=167)

Group	Age	N	Mean	S.D.	F	p	Significance Between Groups
1	22-28	18	.242	.118	7.97	.00	
2	29-35	84	.329	.152			
3	36-42	47	.428	.141			3:1,2
4	43-49	18	.351	.183			

Table 21 contains the results of the _t_ tests conducted to determine whether any significant difference existed between the index means for a) all respondents and b) those who received salary recognition, when classified by sex. Neither the _t_ value for a) 1.20 nor that for b) -1.03 were significant.

Table 21

Differences in Index Means of Male and Female Vocational Education Teachers Classified by a) All Respondents (N=213) and b) Those With Salary Recognition (N=167)

a) All Respondents (N=213)

Sex	Number	Mean	Standard Deviation	D.F.	t	p
M	179	.282	.195	211	1.20	.23
F	34	.237	.231			

b) Salary Recognition (N=167)

Sex	Number	Mean	Standard Deviation	D.F.	t	p
M	146	.345	.156	165	-1.03	.31
F	21	.383	.172			

Sub-Problem 5

> To what extent was any initial wage rate variation associated with geographic location (urban vs. rural employment) or a time factor (year of initial employment as a vocational education teacher)?

The geographic location of each respondent at the time of initial employment as a vocational education teacher was classified as urban (population center in excess of 200,000), small urban (population center in excess of 20,000 but less than 200,000) or rural (area population less than 20,000). During the time period of the study only Calgary and Edmonton met the criteria established for urban centers. Small urban centers included Fort McMurray, Grande Prairie, St. Albert, Red Deer, Lethbridge and Medicine Hat. All remaining locations were classified as rural.

Table 22 contains the one-way analysis conducted to determine whether any significance difference existed between the index mean for geographic location of a) all respondents and b) those who received salary recognition. Neither the F value of 1.94 in the case of all respondents nor the F value of 1.98 in the case of respondents with salary recognition were significant.

A further analysis of geographic location was conducted to determine whether any significant difference existed between index means for particular employing school districts. The five largest school districts in which respondents reported initial employment as vocational education teachers were selected. The results of the analysis of variance are reported in Table 23 for a) all respondents and b) those who received salary recognition. The respective F values of 1.08 and 2.38 were not significant.

Table 22

Oneway Analysis of Variance of Geographic Location of a) All Respondents (N=213) and b) Respondents Who Received Salary Recognition (N=167) Classified by Type of Location

a) All Respondents (N=213)

Group	Location	N	Mean	S.D.	F	p
1	Urban	136	.258	.196	1.94	.15
2	Small Urban	29	.338	.221		
3	Rural	48	.282	.201		

b) Salary Recognition (N=167)

Group	Location	N	Mean	S.D.	F	p
1	Urban	104	.338	.152	1.98	.14
2	Small Urban	24	.409	.172		
3	Rural	39	.347	.163		

The analysis of the time factor variable was conducted by pre-selecting four time frames which were related to the development of vocational education provisions in collective agreements. The first time frame, 1962-1967 covered the period commencing with the first employment of vocational education teachers and ending with the federal government's decision to terminate the provisions of the TVTA. It also corresponded to the period in which the original clauses governing vocational education teachers appeared in collective agreements. The period 1968-1973 incorporated the phase out years of the TVTAA between

Table 23

Oneway Analysis of Variance of Geographic Location of a) All Respondents and b) Respondents Who Received Salary Recognition Classified by Largest Employing School Districts

		School Districts				
		Calgary Public	Calgary Separate	Edmonton Public	Edmonton Separate	County of Strathcona
a) All Respondents (N=147)						
	N	63	9	50	14	11
	Mean	.248	.355	.240	.308	.217
	S.D.	.197	.207	.189	.201	.155
	F	1.08				
	p	.37				
b) Salary Recognition (N=113)						
	N	50	7	36	11	9
	Mean	.313	.457	.333	.392	.265
	S.D.	.169	.055	.134	.127	.125
	F	2.38				
	p	.06				

Ottawa and Alberta. This period witnessed the consolidation of vocational education provisions in all collective agreements covering school jurisdictions offering vocational education programs. The next five years, 1974-1979 incorporated those vocational education teachers trained pursuant to policies and regulations no longer subject to TVTA provisions. This was a period in which collective agreements were modified to delete references to that legislation. The final period, 1980-1983 was one in which virtually no changes were made to the vocational education teacher clauses in collective agreements between Alberta school boards and The Alberta Teachers' Association.

Table 24 contains the analysis of variance of the index means of all respondents initially employed as vocational education teachers during each of the four time periods. The F value of 3.02 with an associated probability of .03 indicated at least one significant difference among the index means. The Scheffé procedure indicated that the index mean for vocational education teachers employed during 1962-1967 was significantly higher than the index mean for those employed during the time period 1974-1979.

Table 25 contains the analysis of variance of the index means of those respondents who received salary recognition and who were initially employed during each of the four time periods. The F value of 3.51 with an associated probability of .02 was followed by the Scheffé procedure. It indicated that the significantly higher index level for all respondents initially employed during 1962-1967 as compared to those engaged from 1974-1979 was also true for respondents who received salary recognition.

Table 24

Oneway Analysis of Variance of Year of Initial Employment of All Respondents Classified by Time Periods (N=213)

Group	Initial Employment Period	N	Mean	S.D.	F	p	Significance Between Groups
1	1962-1967	50	.333	.203	3.02	.03	1:3
2	1968-1973	55	.294	.197			
3	1974-1979	49	.223	.183			
4	1980-1983	59	.250	.208			

Table 25

Oneway Analysis of Variance of Year of Initial Employment of Respondents Who Received Salary Recognition Classified by Time Periods (N=167)

Group	Initial Employment Period	N	Mean	S.D.	F	p	Significance Between Groups
1	1962-1967	41	.406	.142	3.51	.02	1:3
2	1968-1973	45	.359	.154			
3	1974-1979	37	.295	.151			
4	1980-1983	44	.336	.171			

Sub-Problem 6

> To what extent was the subject area demand for vocational education teachers associated with any variation in initial wage rates?

Analysis of the data for subject area in which respondents were initially employed indicated that only 200 of the 213 respondents held assignments which were reported in five or more cases. Therefore, only 11 of the 17 initial subject areas reported by respondents in Table 3 were used in the analysis of variance for all respondents shown in Table 26. The F ratio of 3.33 at a probability level of .00 indicated that for all respondents where subject area was equal to or greater than five cases, at least one significant difference existed between means. However, the Scheffé procedure produced no such differences.

Table 27 contains the analysis of variance of index means of those respondents who received salary recognition and who were included in the subject area listing of the previous table. Numbers less than five were included in this analysis so as to obtain mean index levels of all respondents who received salary recognition. The F value of 1.95 with a probability level of .04 was not substantiated by the Scheffé procedure.

Sub-Problem 7

> To what extent were the initial wages of vocational education teachers competitive with the external wages of tradespeople?

Table 28 contains comparative wage data for respondents whose occupations were surveyed in the annual publications described in Chapter III, pages 53 - 54. The data are tabulated under five column headings labelled A through E.

Column A: "Year", i.e., year of initial employment as a vocational

Table 26

Oneway Analysis of Variance of Initial Subject Area of All Respondents Classified by Subject Areas in Which N=>5 (N=200)

Group	Subject Area	N	Mean	S.D.	F	p
1	Autobody	8	.411	.183	3.33	.00
2	Electricity/Electronics	23	.359	.192		
3	Mechanics	45	.332	.153		
4	Beauty Culture	24	.307	.240		
5	Welding	11	.305	.214		
6	Health Services	5	.248	.199		
7	Drafting	29	.247	.187		
8	Building Construction	24	.191	.184		
9	Visual Communications	6	.178	.233		
10	Food Preparation	11	.168	.159		
11	Horticulture	5	.154	.121		

Table.27

Oneway Analysis of Variance of Initial Subject Area of Respondents Who Received Salary Recognition Classified by Subject Areas (N=158)

Group	Subject Area	N	Mean	S.D.	F	p
1	Beauty Culture	17	.433	.157	1.95	.04
2	Autobody	8	.411	.183		
3	Electricity/Electronics	22	.374	.179		
4	Welding	9	.373	.170		
5	Mechanics	41	.365	.117		
6	Visual Communications	3	.356	.202		
7	Drafting	22	.326	.142		
8	Health Services	4	.310	.165		
9	Building Construction	23	.274	.159		
10	Horticulture	1	.270	.000		
11	Food Preparation	8	.231	.139		

education teacher.

Column B: "Occupation", i.e., occupational background of respondents. Those respondents who listed more than one background were classified under the occupation most closely related to their initial teaching assignment.

Column C: "Teaching Base Wage", i.e., the salary the respondent would have received as a non-vocational education teacher based on the number of years of university education and incremental advancement, if any, for previous teaching experience.

Column D: "Advance Placement Wage", i.e., the initial salary of the respondent once allowances or increments for previous industrial or trade experience had been granted. An asterisk indicates no advance placement.

Column E: "External Wage Rate", i.e., the average provincial wage of tradespeople surveyed in the annual publications of the Government of Alberta. Data for "hourly conversion" were calculated by the formula: average hourly rate x 40 hours x 48 weeks. This provided an annual wage comparable to the "monthly conversion" of monthly wages x 11 months. Due to changes in the survey methodology used in the data collection for the annual publications, it was not possible to obtain data for every occupation in every year. When figures are reported for a single occupation under both hourly and monthly headings, they indicate that the survey for that year took into account both the average hourly wage of tradespeople employed on that basis and the average monthly wage of tradespeople under longer term contracts. Where two figures are reported under the hourly rate, the first is for "Maintenance" employment and the second for "Construction" employment. A single figure indicates that only "Maintenance" employment was surveyed in that year or that no distinction was made in the nature of the employment.

A major limitation of the annual wage surveys was their failure to distinguish wage levels on the basis of experience. One exception was the data provided for "Draftsman" in which wage distinctions were made among starting, skilled and senior levels. The "skilled" wages were used in Table 28 because most respondents reported a number of years of experience in the field prior to entry into teaching. A second exception was the data provided for "Cooks", in which distinctions were made among assistants, master cooks, and master chefs. The "master cook" wage levels were used in Table 28, but they do not appear to be indicative of the wage levels that were used to establish competitive criteria. Because of this limitation, the construction of an index measuring degree of competitiveness did not appear valid. Analysis of the data in Table 28 is therefore limited to broad statistical comparisons.

Table 28 contains wage comparisons for 148 or 69.5% of the 213 respondents. Advance placement wages exceeded the external average wage range or external average wage rate posted for each occupation in 112 or 75.7% of the 148 cases. Advance placement wages that equalled the single external average wage rate or fell within the range of external average wage rates appeared in 8 cases or 5.4% of the comparisons. The remaining 28 cases or 18.9% of the respondents listed in the table received advance placement wages below the average external wage rate or rates posted for the years in which they were initially employed as vocational education teachers. In 27 or 18.2% of the 148 comparisons, the respondents received no advance placement recognition. In these cases, the teaching base wage was in excess of the external wage rate in 18 instances or 66.7% of the 27 observations. Finally, a comparison was made between teaching base wages and external wage rates. This provided a measure of the extent to which employers may have been compelled to offer initial wage rates or advance placement wages that were competitive with external wage rates. Teacher base wages exceeded external wage rates in 43 of the 148 observations or in 29.1% of the cases. They were below external wage rates in 70.5% of the cases observed.

The Relationship Between Selected Variables Used in the Analysis of Sub-Problems 1, 2, 4 and 5

A test of the extent to which the sub-problems identified in the research were independent of each other was conducted with the CORRELATION subprogram. The Pearson product moment correlation coefficient was used to measure the degree of relationship between the interval variables of sub-problems 2 (year of previous industrial or trade experience), 4 (age at time of initial employment) and 5 (year of initial employment). For purposes of this analysis the variables are identified by the sub-problem number. The only significant relationship (r=.62) was that between years of previous industrial or trade experience and age at time of initial employment. While it was expected that older vocational education teachers would have had more previous industrial or trade experience than younger vocational education teachers, the extent of correlation was insufficient to suggest

Table 28

A Comparison of Internal and External Wage Rates of Selected Occupations, 1962-1983

A	B	C	D	E	
Initial Employment Year of Respondent	Industrial or Trade Occupation of Respondent	Comparable Base Wage of Respondent	Advance Placement Wage of Respondent	External Wage Rate	
				Hourly Conversion[1]	Monthly Conversion
1962	Carpenter	3500	4500	4800	4037
		5050	5050*		
		5700	5700*		
	Cook	3800	4500		2926
	Mechanic	4900	4900*	4070	4213
		5050	5050*		
		5000	6200		
1963	Carpenter	3500	4700	4762	4422
		5500	5500*		
	Draftsman	3800	5500		
		3900	~~6200~~		
	Mechanic	3550	4800	4128	4158
		3800	6050		
1964	Commercial Artist	3600	4100		4664
	Cook	3600	4200		3289
		3600	4850		
	Plumber	3500	5900		4411
1965	Carpenter	3800	6050	4896	4576
	Draftsman	3675	5175		4521
	Mechanic	3675	5425	4435	4466
1966	Carpenter	4250	5750	5299	5038
	Draftsman	5300	5300*		4994
	Mechanic	3650	4750	4723	4642
		3950	5450		

[1] Where two rates appear in this column, the first is for "Maintenance" employment and the second is for "Construction" employment.

* Denotes no advance placement.

1967	Carpenter	6200	6200*		5478
		4900	6300		
		7300	9950		
	Draftsman	4000	5200		5027
		4200	6000		
		4200	6300		
1968	Carpenter	11050	11500	6336	6006
	Commercial Artist	4650	6150		5874
	Mechanic	4550	6800	5664	5764
	Welder	4650	7050		6270
1969	Carpenter	5100	7375	7162/7642	6963
		7630	9350		
	Draftsman	4950	5300		6787
		5100	6725		
		7100	7100*		
		7650	7650*		
		6950	8950		
		7750	10000		
	Electrician	6375	6725	7622/7853	7326
		5900	8420		
	Machinist	5900	7140		
		5100	7375		
		5050	7650		
	Mechanic	5100	7375	6336	6402
	Welder	4950	6575	6835/7008	7194
		5800	7850		
1970	Autobody Mechanic	5930	6880	6778	6292
		5200	8350		
		7625	10585		
	Carpenter	5100	7050	8218/8045	7436
	Cook	5100	7375		4983
		12725	12725*		
	Draftsman	5100	7375		7172
	Mechanic	8025	12250	6893	6952
		7500	12500		
	Welder	7250	9950		8074
1971	Carpenter	8025	8375	8294/9427	8646
	Draftsman	7725	10600		7656
	Heavy Duty Mechanic	5275	7325		7766
	Mechanic	7675	10175		7579

Table 28 (continued)

A Comparison of Internal and External Wage Rates of Selected Occupations, 1962-1983

A	B	C	D	E	
Initial Employment Year of Respondent	Industrial or Trade Occupation of Respondent	Comparable Base Wage of Respondent	Advance Placement Wage of Respondent	External Wage Rate	
				Hourly Conversion[1]	Monthly Conversion
1972	Machinist	8725	10250	8467	7590
	Mechanic	6050	8360	7987	8019
	Welder	5840	8365	8582	9053
1973	Mechanic	8725	12025	8909	8382
1974	Draftsman	9275	11575		10307
	Mechanic	9275	11575	10522	10032
		9275	11625		
1975	Carpenter	11400	11400*	11578/10637	13948
	Draftsman	12800	12800*		11539
		11200	14000		
		11400	14200		
	Machinist	11300	16200	12269/13344	13629
	Nurse	11200	14000		10835
1976	Carpenter	12100	12890	13766/18355	16071
		12100	17630		
		21923	21923*		
	Heavy Duty Mechanic	12365	18485	15034	14498
	Machinist	13130	14660	13958	14993
	Mechanic	9220	12980	13632	13013
		10940	13665		
		12000	17600		
		12365	18485		
	Millwright	12365	15425	14688	15719
	Welder	11020	14290	14592/14842	15191
1977	Commercial Artist	13345	14995		14355

1978	Carpenter	17050	22375	15552/21696	19952
	Cook	14451	15337		11396
		12685	15835		
	Mechanic	11398	13962	15955	16192
		14451	18881		
	Nurse	14451	14451*		14630
1979	Carpenter	13705	15382	19142/21619	20097
		15521	20277		
	Draftsman	15410	17310		16841
		13635	17685		
		15150	25315		
		26035	26035*		
	Graphic Artist	13705	13705*		14960
	Mechanic	13635	15660	17798	17809
		13705	18514		
		19195	19195*		
		15115	20875		
	Occupational Therapist	17200	26695		
1980	Architect	19290	19290*		24079
	Carpenter	19290	20430		20397
		27830	27830*		
	Cook	15000	15000*		15130
		16415	21895		
	Draftsman	17000	17000*		17000
	Electrician	24380	28580		20876
	Mechanic	17000	21160		18192
		17030	23330		
	Nurse	17030	20180		17630
1981	Carpenter	18800	18800*	25344/25344	
		28275	28275*		
		26940	31795		
	Commercial Artist	16000	23800		20160
	Cook	19910	21085		15360
	Draftsman	28160	32000		21650
	Electronic Technician	18820	22300		23210
		18820	29260		
		29435	34290		
	Mechanic	18870	24645	23040	
		18870	28110		
		18950	28301		
		28160	32000		

Table 28 (continued)

A Comparison of Internal and External Wage Rates of Selected Occupations, 1962-1983

A

Initial Employment Year of Respondent	Industrial or Trade Occupation of Respondent	Comparable Base Wage of Respondent	Advance Placement Wage of Respondent	External Wage Rate	
				Hourly Conversion[1]	Monthly Conversion
1982	Autobody Mechanic	21455	34655	24768	
	Carpenter	25435	25435*	26880	
		21450	29415		
		25415	33335		
		41424	41424*		
	Communications Electrician	21455	34655		22880
	Heavy Duty Mechanic	17500	22125	28608	
	Mechanic	22300	31498	25152	
1983	Autobody Mechanic	22475	27475	24384	
	Heavy Duty Mechanic	22308	29993	31104	
	Mechanic	18660	18660*	26880	
		18325	24247		
		25765	31305		
	Nurse	22630	28301		28416
	Welder	22575	24024	30912	
		22425	28035		
		40924	40924*		

that these two measures were not independent (r^2=.38, see Table 29).

Levels of correlation between these independent variables and the index measure used as the dependent variable in the sub-problem analysis are shown in Table 30. Age was moderately correlated with the index measure of all respondents (r=.28) and those who received salary recognition (r=.24). Year of initial employment was negatively correlated with the index measure of all respondents (r=-.17) and with those who received salary recognition (r=-.20) suggesting a slight tendency towards a lower ratio of initial wage to base wage over time. Years of previous industrial or trade experience correlated at the .51 level with the index measure for all respondents and at the .43 level with the index measure for those respondents who received salary recognition. Since "related industrial or trade experience" was the most common "suggestor" of compensation used in collective agreements, it was not unexpected to find a higher correlation between it and the index measure. While the direction of the relationship was positive, the strength of the relationship was not substantial for either all respondents (r^2=.26) or for those who received salary recognition (r^2=.18).

Table 29

Coefficients of Correlation Among X_2, Years of Previous Industrial or Trade Experience, X_4, Age at Time of Initial Employment and X_5, Year of Initial Employment

	X_4	X_5
X_2	.62 (205) p=.00	-.13 (205) p=.07
X_4		-.09 (213) p=.18

Table 30

Coefficients of Correlation Between the Independent Variables X_2, Years of Previous Industrial or Trade Experience, X_4, Age at Time of Initial Employment, X_5, Year of Initial Employment and the Dependent Variables, X_R, Index Measure of All Respondents and X_S, Index Measure of Respondents Who Received Salary Recognition

	X_R	X_S
X_2	r=.51 (205) p=.00	r=.43 (167) p=.00
X_4	r=.28 (213) p=.00	r=.24 (167) p=.00
X_5	r=-.17 (213) p=.01	r=-.20 (167) p=.01

CHAPTER V

RESEARCH FINDINGS

Introduction

The previous chapter dealt with the presentation and analysis of the data provided by the respondents to the research instrument. In this chapter the findings are presented as they relate to the problem and each of the sub-problems.

The Problem

The research focus of this study was on the provisions of collective agreements between The Alberta Teachers' Association and Alberta school boards that dealt with the compensation of vocational education teachers. Specifically, the study dealt with the extent to which those provisions were instrumental in the development of an internal wage structure for vocational education teachers during the period 1962-1983. In the case of each respondent an analysis of collective agreement provisions was conducted to determine the relationship between the form and level of compensation and the prevailing provisions of the applicable collective agreement.

All agreements studied permitted the initial wage rate of vocational education teachers to deviate from the base wage rate established for all teachers. All agreements, save one, restricted the deviation to the maximum salary that could have been obtained by a teacher with the same amount of university education as adjudged by agencies recognized by both parties to the collective agreement. The exceptional agreement allowed for placement of a vocational education teacher in a salary category higher than that adjudged by the recognized external agency. However, it, too limited the maximum salary to that established for the higher category in the prevailing collective agreement. Thus, a range for deviation from the base wage was established in all agreements.

Within this deviation range, all agreements established a mechanism by which the employer and employee could agree upon an initial wage rate that might depart from the established base wage rate. The feature common to all agreements was the general provision that a vocational education teacher could be placed on the salary grid at a salary step higher than the one to which he would have been entitled as a teacher. Since salary steps were always calculated in incremental dollar values, the number of steps obtained by a vocational education teacher was instrumental in the determination of the dollar value of the initial wage rate. In this regard, most collective agreements were not precise. While advance placement on the salary grid or schedule was recognized as a means of establishing an "attractive" or "competitive" wage rate, there was seldom any formula used to determine the placement with precision. The common terminology, "for related trade experience" did not provide an accurate definition. Even in those instances where agreements included formulae, they did not define the term "related". This lack of precision was not unintentional. The deviation range was an outcome of the integrative bargaining between teachers and trustees undertaken throughout the period of the study. It was functional to the extent that it helped to resolve the contentious issues that surrounded the compensation of vocational education teachers in the period following the inception of the TVTAA. It further allowed for competitive wages, as measured by external wage rates, to operate within an established range. Finally, it permitted individual negotiation within a salary range.

A few of the earliest collective agreements that dealt with vocational education teachers incorporated "allowances" or flat dollar amounts that could be offered by an employer as compensation additional to or in place of the advance placement provisions. These allowance provisions were phased out or deleted during the period 1968-1973. They seldom exceeded $750. Only 13 of the 213 respondents to the research instrument used in this study obtained compensation in this form.

Based on the analysis of collective agreements and the data tabulated in Chapter IV, Tables 11 to 16, it was found that collective agreement provisions governing the recognition of vocational education teacher preparation and experience were operative throughout the period 1962 to 1983. While the type of internal wage structure that emerged during this time was not consistent with any notion of standardization, there was no doubt that the internal wages of vocational education teachers, as measured by their initial wage rates, did vary from the base wage rates established for the internal wage scales of teachers in general. In this study, 78.4% of the respondents commenced their vocational education teaching careers with some form of advance placement.

Sub-Problem 1

To what extent did the initial wage rates of vocational education teachers deviate from the base wage rates of other teachers in the years of 1962-1983?

For purposes of analysis, all respondents to the survey instrument (N=213) were treated as a labor pool or a source of supply. From this perspective, it was possible to interpret the data provided by respondents as indicative of the extent to which a particular form of labor supply, viz., vocational education teachers was initially compensated beyond the established base wage level. Treated as a whole, the average initial wage rate of all vocational education teachers who responded to the research instrument was 27.4% higher than the average base wage rate for which they were entitled exclusive of any recognition for previous industrial or trade experience. Those within the labor pool who achieved initial wage rates in excess of their corresponding base rates (N=167) did so to the extent of an average of 35.0% in excess of their base rates. The percentage range established for the 167 respondents was from 4.1% to 68.9% in excess of base wage rates.

Sub-Problem 2

To what extent was industrial or trade experience before entry into teaching associated with any initial wage rate variation?

The between group variation in the initial wage rates of all respondents was found to be significant when distinctions were made between vocational education teachers with five or fewer years of previous industrial and trade experience and those with six or more years of such experience. Variation with base wage rates averaged 16.1% for vocational education teachers with 1-5 years of previous experience while those with 6-10 years of previous experience averaged 31.5%. The average index measure increased to 40.4% for the 11-15 year category and to 42.3% in the 16-20 year range. Vocational education teachers with 21-28 years of previous trade experience obtained an index measure of 38.4%.

A similar finding was observed when analysis was conducted for those vocational education teachers who received salary recognition (N=167). The only difference of statistical significance occurred between those who had 1-5 years of previous experience and whose average variation with base wage was 24.5%, and those who had 6-10 years; 36.5%, 11-15 years; 42.9% and 16-20 years; 42.3%. The index measure for those with 21-28 years of previous trade experience at 38.4% did not have a statistically significant difference with the average index for vocational education teachers with 1-5 years of experience.

A comparison of all respondents with those who received salary recognition revealed that the eight vocational education teachers with no previous trade experience received no advance placement. Fifty-four of the 82 teachers or 65.9% of those who had 1-5 years of previous experience received salary recognition. Forty-four of the 51 teachers with 6-10 years of previous experience received recognition or 86.3%. Forty-eight of the 51 teachers with 11-15 years of experience or 94.1% received recognition. All of the vocational education teachers with 16 or more years of previous trade experience obtained advance placement. Based on these observations it would appear that respondents increased their probabilities of obtaining advance placement commensurate with their length of service in industrial or trade occupations.

Sub-Problem 3

To what extent was industrial or trade experience in particular occupations before entry into teaching associated with any initial wage rate variation?

No significant differences were found among the index means for various occupations of all respondents where five or more reported a single occupational background or for those respondents who received salary recognition when classified by the same criterion. This was so despite a probable F value.

A comparison of all respondents with those who received salary recognition revealed that advance placement was achieved by all Autobody Mechanics, Electricians and Machinists. Of the respondents who received salary recognition, Beauticians obtained the highest average variation with base wages at 43.3%. This index measure applied to 17 of the 24 respondents or 70.8%. The occupational background with least recognition was that of Horticulturalist. Only one of the five respondents reported any advance placement. The range of index variation narrowed after salary recognition was taken into account. The range for all respondents where an occupation was reported in five or more cases was from 5.4% to 41.4%, a net difference of 36.0%. The range for respondents who received salary recognition was from 23.1% to 43.3%, a net difference of 20.2%.

Sub-Problem 4

To what extent was any initial wage rate variation associated with personal characteristics such as age and sex?

When age differentials for all respondents at the time of initial employment were analyzed, significant differences were observed between the mean wage index of 13.6% for vocational education teachers in the 22-28 year age range and the mean indices of 26.6%, 35.9% and 30.1% for age ranges 29-35, 36-42 and 43-49 years respectively. As well, the mean wage index for the age group 36-42 at 35.9% was also significantly higher than the index for age group 29-35 at 26.6%. The analysis for respondents who received salary recognition yielded a significant difference between the mean index of 42.8% for those in the 36-42 year age group and the indices of the two preceding age groups of 32.9% for 29-35 years and 24.2% for 22-28 years.

A comparison of the age groupings for all respondents with those who received salary recognition revealed that the proportion of respondents who received salary recognition increased through the age group categories. While only 56.3% of those respondents 22-28 years of age at the time of initial employment received any form of salary recognition, 80.8% of age group 29-35, 83.9% of age group 36-42 and 85.7% of age group 43-49 were able to obtain salary recognition.

No significant differences were found between the mean index levels for either all respondents or those who received salary recognition when categorized by sex. The average variation in the wage index for all male respondents was 28.2% and for all female respondents 23.7%. The index level for females who received salary recognition was 38.3% as compared with 34.5% for males. The proportion of male respondents who received salary recognition was 81.6% and the proportion of female respondents who received salary recognition was 61.8%.

Sub-Problem 5

> To what extent was any initial wage rate variation associated with geographic location (urban vs. rural) or a time factor (year of initial employment as a vocational education teacher)?

No significant differences were found among the mean index levels for either all respondents or for those who received salary recognition when classified by location of initial employment as vocational education teachers. The average wage variation for all urban respondents was 25.8%. Small urban and rural respondents averaged 33.8% and 28.2% respectively. Respondents who received salary recognition obtained a mean index level of 33.8% in urban centers, 40.9% in small urban centers and 34.7% in rural areas. The proportion of respondents who received salary recognition was 76.5% in urban centers, 82.8% in small urban centers and 81.3% in rural areas. A further comparison of mean index levels among respondents employed by the five school districts identified as the largest employers indicated no significant differences.

Analysis of time periods during which all respondents were initially employed as vocational education teachers revealed a significant difference between the index means for those employed in the first period, 1962-1967, and those employed in the third period, 1974-1979. Average variation in the years 1962-1967 was 33.3% as compared to 22.3% in the years 1974-1979. This difference also held in the analysis for respondents who received salary recognition where the 1962-1967 mean variation was 40.6% and that for 1974-1979 was 29.5%.

The proportion of all respondents who received salary recognition during each of the time periods was 82.0% in 1962-1967, 81.8% in 1968-1973, 75.5% in 1974-1979 and 74.6% in 1980-1983.

Sub-Problem 6

To what extent was the subject area demand for vocational education teachers associated with any variation in initial wage rates?

Analysis of mean index level differentials between the initial subject area assignment of all respondents and those who received salary recognition indicated at least one significant difference in each case but these were not revealed by means of the Scheffé procedure. The average index levels calculated for this sub-problem were similar to those obtained for Sub-Problem 3 suggesting that occupational background and subject area were measures of the same types of demand for vocational education teachers.

Using the criteria of five or more respondents per subject area, the analysis of mean index levels revealed that only the labor pool of all respondent Autobody teachers exceeded the 40.0% level. Teachers of Electricity/Electronics, Mechanics, Beauty Culture and Welding were within the 30-39% range, while those who taught Health Services and Drafting fell within the 20-29% range. Building Construction, Visual Communications and Food Preparation teachers occupied the 10-20% range.

The range of index levels narrowed when only respondents who received salary recognition were taken into account. Both Beauty Culture and Autobody teachers exceeded the 40.0% level. Teachers of Electricity/Electronics, Welding, Mechanics, Visual Communications, Drafting and Health Services were within the 30-39% range and the 20-29% range was occupied by teachers of Building Construction, Horticulture and Food Preparation.

Sub-Problem 7

> To what extent were the initial wages of vocational education teachers competitive with the external wages of tradespeople?

Analysis of the external wage data was limited to those occupations surveyed on a regular basis by agencies of the Government of Alberta. Limitations inherent to the survey methodology of these publications prevented detailed comparisons of the degree of competitiveness of external wage rates with the internal wage rates of vocational education teachers. Wage rates for 148 of the 213 respondents (69.5%) were analyzed. Competitive criteria were met in 120 of the 148 instances (81.1%) in that the initial wage of respondents either met or exceeded the range of external wages as measured by average rates. Twenty-eight of the 148 comparisons (18.9%) were below external rates. A comparison of teacher base wage rates with external rates indicated that the former were less than competitive in 105 of the 148 observations (70.5%).

Interrelationship of Variables Used in the Study

Correlation analysis was used to determine the extent of association between the independent interval variables used to measure subproblems dealing with age, year and previous industrial or trade experience at time of initial employment. The only significant relationship was that between age and years of previous trade experience ($r=.62$). This finding was insufficient to conclude that the variables were not independent of each other ($r^2=.38$).

Measures of association between these independent variables and the dependent variable used in much of the analysis, the initial wage to base wage index revealed significant but moderate relationship. The exception was the correlation between previous trade years and the index for all respondents ($r=.51$) and for those who received salary recognition ($r=.43$). Since previous trade years were recognized in collective agreements as the only indicator of the extent of salary recognition, a stronger relationship could have been expected.

CHAPTER VI

SUMMARY, MAJOR FINDINGS, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Introduction

The findings of this research were presented in the previous chapter. In this chapter, the research is summarized and observations are provided under the headings: Summary, Review of Major Findings, Conclusions, Implications for Further Study and Recommendations.

Summary

Nature of the Study

The purpose of this study was to investigate the extent to which the provisions of collective agreements between The Alberta Teachers' Association and Alberta school boards were instrumental in the development of an internal wage structure for vocational education teachers. The study was delimited to the period 1962-1983, years which incorporated the initiation, development and consolidation of collective agreement provisions governing the initial compensation of vocational education teachers.

An analysis of the vocational education initiatives of the early 1960's by the federal government and the reactions of the provincial authority and other Alberta stakeholder groups concerned with vocational education was undertaken. This provided the historical context for the elaboration of the problem. The framework adopted to explain the emergence of negotiated provisions was provided by the literature relating to the economics of labor relations. A model of integrative bargaining enunciated by Walton and McKersie (1965) was used to explain the dynamics of labor relations that led to the establishment of the relevant clauses. The same literature provided wage determination criteria that were used in the construction of the sub-problems. The variables selected from this review and that of related studies were characterized as having market force, social, or legislative relationships to wage levels.

Instrumentation and Methodology

Data were collected via a 15 item questionnaire developed for the study. The instrument sought information pertaining to personal characteristics, employment history in teaching and other occupations, and salary determinants. All questions were designed to elicit answers by either a category check-off or short write-in response.

The questionnaire was pilot tested using two vocational education teachers and two executive staff members of The Alberta Teachers' Association. It was also critically reviewed by the researcher's major advisor. After revision, it was distributed to 544 vocational education teachers identified by Alberta Education as employees of Alberta public or separate school districts in the school year 1983/84. A total of 239 returns were received of which 213 were usable for statistical analysis. Statistical techniques used to analyze the data included frequency distributions, One-way Analysis of Variance, _t_ Tests, and Correlation Coefficients.

Review of Major Findings

Problem: To what extent were the provisions of collective agreements between The Alberta Teachers' Association and Alberta school boards governing the recognition of vocational education teacher preparation and experience instrumental in the development of an internal wage structure for vocational education teachers?

The collective agreements under which respondents were employed permitted, within an established range, the deviation of initial wage rates from base wage rates. Mechanisms to accommodate the deviation took the form of absolute sums of money and/or incremental advancement. The justification for deviation was specified as recognition for previous industrial or trade experience but the extent of recognition was seldom precise. The lack of specificity served the purposes of individual employers and employees in arriving at an internal wage. The provisions were operative throughout the period of the study.

Sub-Problem 1. To what extent did the initial wage rates of vocational education teachers deviate from the base wage rates of other teachers in the years 1962-1983?

The 213 respondents reported an average initial wage rate 27.4% in excess of base wage rates. The 167 respondents who reported that they received salary recognition for previous trade experience obtained an average initial wage rate 35.0% in excess of base wage rates.

Sub-Problem 2. To what extent was industrial or trade experience before entry into teaching associated with any initial wage rate variation?

The analysis of data from all 213 respondents revealed that those with 6-10, 11-15, 16-20 and 21-28 years of previous industrial or trade experience obtained initial wage rates related to base rates that were significantly higher than those for respondents with 0-5 years of previous experience. For the 167 respondents who received salary recognition, those with 6-10, 11-15 and 16-20 years of previous experience obtained average wage differential indices significantly higher than those with 1-5 years of experience. The means for wage variation when N=213 were 16.1%; 1-5 years, 31.5%; 6-10 years, 40.4%; 11-15 years, 42.3%; 16-20 years and 38.4%; 21-28 years. The means for wage variation when N=167 were 24.5%; 1-5 years, 36.5%; 6-10 years, 42.9%, 11-15 years and 42.3%; 16-20 years. The proportion of vocational education teachers who received salary recognition increased with each previous experience category.

Sub-Problem 3. To what extent was industrial or trade experience in particular occupations before entry into teaching associated with any initial wage rate variation?

No significant differences among the means of the wage variation index were found for the occupational backgrounds of either all respondents or those who received salary recognition. The range of average wage deviation narrowed from 36.0% to 20.2% after respondents who received no salary recognition were excluded from the analysis.

Sub-Problem 4. To what extent was any initial wage rate variation associated with personal characteristics such as age and sex?

Significant differences were found between the mean wage variation indices for older respondents relative to younger respondents. This was observed to the extent that the mean for respondents in age groups 43-49; 30.1%, 36-42; 35.9% and 29-35; 26.6% exceeded the mean of 13.6% for respondents who were 22-28 years old at the time of initial employment as vocational education teachers. The mean for age group 36-42 was also found to be significantly higher than that for age group 29-35. When only salary recognition was taken into account, the mean for age group 36-42; 42.8% was found to be significantly higher than the means for age groups 29-35; 32.9% and 22-28; 24.2%. The proportion of all respondents who received salary recognition increased from lower to higher age group categories.

Categorization by sex revealed no significant differences between mean index levels for either all respondents or those who received salary recognition. The proportion of male respondents who received salary recognition was 81.6% as compared to a proportion of 61.8% for female respondents.

> Sub-Problem 5. To what extent was any initial wage rate variation associated with geographic location (urban vs. rural) or a time factor (year of initial employment as a vocational education teacher?)

No significant differences were found among mean index levels for either all respondents or those who received salary recognition when classified by location of initial employment. Analysis of data for all respondents revealed that those initially employed in the period 1962-1967 obtained an average wage variation of 33.3% which was significantly higher than the 22.3% obtained by respondents employed in the period 1974-1979. The difference also held for those respondents who received salary recognition. The mean for the years 1962-1967 was 40.6% while that for 1974-1979 was 29.5%. The proportion of respondents who received salary recognition declined somewhat throughout the time periods.

> Sub-Problem 6. To what extent was the subject area demand for vocational education teachers associated with any variation in initial wage rates?

No significant differences were found among average wage differentials of either all respondents or those who received salary recognition when classified by subject area assignment at time of initial employment. The resultant indices approximated those produced for Sub-Problem 3 suggesting that the variables were highly interdependent.

> Sub-Problem 7. To what extent were the initial wage rates of vocational education teachers competitive with the external wages of tradespeople?

Analysis of the limited data available indicated that internal wage rates met or exceeded external wage rates in 81.1% of the 148 cases in which comparisons could be made. Base wage rates were found to be less than external wage rates in 70.5% of the cases observed.

Relationships Among Variables. The only significant relationship found among three of the independent variables used in the sub-problems of the study was that between age and years of previous industrial or trade experience. The _r_ of .62 was insufficient to suggest substitution. Levels of association with the dependent variable, the index measure of initial wage to base wage, were significant but of insufficient strength to account for substantial variation.

Conclusions

Introduction

The relationship of the findings to the conceptual and historical framework of the study provided in Chapter II is discussed in this section. Conclusions are listed under the following headings: Historical Context, Wage Determination and Collective Bargaining, and Wage Determination Criteria.

Historical Context

1. The vocational education initiatives undertaken by the federal government in the early 1960's did not provide for consultative mechanisms with the provinces in advance of legislation. The haste with which the TVTAA was drafted, debated and proclaimed obviated any extensive consideration of the problems that such legislation might create for provincial authorities and educational stakeholders. Nonetheless, the willingness of Alberta and other provinces to participate in programs under the Act indicated that access to funding was a higher priority than planning. In particular, there was no evidence to suggest that matters pertaining to labor relations ever entered into consideration until some months after the federal legislation was proclaimed and Alberta was about to become a signator to an agreement with Ottawa (see pages 25-27).

2. In the context of hasty decision-making it was not surprising that educational stakeholders were able to agree upon the provision of a labor supply, viz., vocational education teachers, through means that were already well established. The choice of university preparation met the needs of stakeholders and provided what Wallace described as a "mediating point" that was least disruptive to their relationships (see pages 22-24).

3. The construction of facilities to accommodate vocational education programs and the institution of a professional teacher training program provided the demand and supply components necessary to the process of wage determination. However, the traditional wage structure established for teachers did not provide an internal wage that could

meet the external wage criteria normally applicable in a process of wage determination involving new forms of labor. The problems created for both The Alberta Teachers' Association and employing school boards could have brought about significant conflict.

Wage Determination and Collective Bargaining

1. A process of integrative bargaining was available to teachers and school boards because failure to deal with the issues in such a manner would have had considerable negative impact on the public image of both parties.

2. In a relatively short period (1962-1965) provisions were agreed upon that retained the integral features of the traditional teacher wage structure for vocational education teachers as well as providing for elements of flexibility that served the purposes of both employees and employers. The non-specific language of collective agreements pertaining to the establishment of an initial wage for vocational education teachers was functional to the interests of teachers, trustees, and vocational education teachers.

Wage Determination Criteria

A review of the literature dealing with theories of wage determination and studies of private returns to investment in education suggested that wage determination was associated with market forces, social factors and legislative provisions. It cannot be assumed that the variables that may be used to represent each of these factors are totally independent of one another in either a theoretical or quantitative sense. The categorization is useful, however, in elaborating the conclusions based on the sub-problem findings. Collective agreement provisions related to vocational education teacher compensation were largely non-directive. The factors assumed to be associated with individual bargaining and subsequent wage determination, and the conclusions derived from the findings are presented under the subheadings: Market Forces, Social Factors, and Legislative Provisions.

Market Forces

1. The average wage rate variation among vocational education teachers when supply and demand variables of occupational background and subject area were considered was not found to be significant. In each case, however, it was noted that certain occupational backgrounds and certain subject areas provided a greater likelihood of salary recognition than others. Trades such as Autobody Mechanic, Electrician and Machinist were recognized in all cases. The incidence of salary recognition was over 65% for all other trades with the exception of Horticulturalists. In general, the trade backgrounds and subject areas that appeared to be in relatively high demand as evidenced by "participation rates" and relatively high average earnings indices were those related to Autobody work, Mechanics and related occupations, Electricity and Electronics, and Beauty Culture.

2. External wage rates as measured by average hourly and monthly earnings appeared to be associated with whether or not salary recognition was obtained. The probability of obtaining salary recognition was high (over 80%) when external wage rates exceeded the base wage rates of teachers. It was not possible to obtain a valid measure of

association between internal or external wage rates on the basis of this study.

3. Vocational education teachers initially employed during the period 1962-1967 received higher average initial wages relative to base wages than those first employed during subsequent time periods. This may have been a reflection of the supply and demand forces operative during the start-up period. During these years, the issue of salary recognition was most prominent. As well, the numbers of potential occupants of vocational education positions were constrained by the space available in the new training programs.

4. Competition for manpower among employers in urban, small urban and rural areas was not demonstrated by any significant differences among the average wage differentials obtained by vocational education teachers initially employed in these locations.

5. In that collective agreements contained provisions for the recognition of industrial or trade experience, this variable could be classified as legislative. It must be recognized, however, that market forces were operative to the extent that employers were free to choose among potential employees having varying amounts of experience. The fact that collective agreements did not precisely define the relationship between previous trade experience and salary recognition suggests that market forces were intended to operate. It was evident from the findings that the greater the length of experience, the greater the likelihood of obtaining salary recognition. In general, vocational education teachers with six or more years of previous industrial or trade experience earned significantly higher levels of initial wage

rates to base rates than those with less experience.

Social Factors

1. While no significant difference between average wage indices was found for male and female vocational education teachers, the participation rate of males was considerably higher than that of females. It appeared that within this respondent group, males had greater access to salary recognition.

2. With respect to earnings ratios, older vocational education teachers fared better than their younger counterparts and participation rates increased through age categories.

Legislative Provisions

1. The only rules or legislative provisions that could be determined as binding on the wage variation measure were those associated with the minimum and maximum wage that could be obtained. In this respect, collective agreements were rigorous in their stipulation of salary categories that were applicable to other teachers and a maximum wage that could not exceed the rate posted for other teachers with the same training. Based on the limited external wage data available, it was found that internal wage rates were always capable of being competitive within the legislated range. This in itself prevented long term wage distortion and allowed for the eventual integration of the internal wage rates for vocational education teachers with the internal wage rates of all other teachers. Individual bargaining took place within the legislated range. Once these parameters were established, differences in wage rate variation among vocational education teachers

were largely attributable to market force variables identified in this research.

Implications for Further Study

More reliable measures of external wage rates than those used in this study would permit research to focus on the extent of variation in either internal wage rates or the ratio of internal wage rates to base rates associated with external wage variations. Regression analysis might then be the appropriate method to determine internal wage variations as a function of the variables used in this study. Hypotheses about the factors crucial to the establishment of an internal wage structure for new forms of labor might then be formulated and tested.

Recommendations

1. It is somewhat ironic that the federal government initiatives of the 1960's which were in large measure prompted by concerns for manpower development took so little account of the labor market in which the training of manpower was to take place. The paucity or virtual absence of consultation with provincial officials, the rapidity with which planning was undertaken so as to maximize the acquisition of funding and the ensuing confusion that surrounded the provision of a new form of labor to the education market were all manifestations of a failure to consider manpower planning as a major component of any scheme of manpower development. It is recommended that manpower policy makers and their advisors be more cognizant of the impact of their decisions on labor market sub-systems and that consultative and planning

mechanisms be used more effectively.

2. The fact that a wage determination system that tolerates individual bargaining within the defined limits of a collectively bargained internal wage structure has continued to operate for almost 25 years indicates that it largely satisfies the needs of employers and employees. It is recommended that the features of this system be considered by other labor sectors when integrating new forms of labor into prevalent wage structures.

3. During the review of collective agreement provisions related to vocational education teachers the researcher noted several instances in which the language of the articles or clauses referred to legislation or training schemes no longer in place. It is recommended that these provisions be amended to conform with current conditions.

Bibliography

Alberta Bureau of Statistics. (1962-1980). Salary and wage rate survey. Edmonton, Alberta: Department of Industry and Development (to 1967), Department of Industry and Tourism (to 1971), Alberta Industry and Commerce (1972), Alberta Treasury (to 1980).

Alberta Bureau of Statistics. (1981-1983). Alberta pay and benefits. Edmonton, Alberta: Alberta Treasury.

Alberta Education. (1983). Industrial education manual for guidance to teachers, counsellors and administrators. Edmonton: Author.

Alberta Education. (1985). Program policy manual. Edmonton: Author.

Alberta Teachers' Association, The. (1986). Members' handbook. Edmonton: Author.

Alberta Teachers' Association, The. (1962-1986). Signed copies of collective agreements between The Alberta Teachers' Association and Counties, Divisions, School Districts and School Authorities Associations, Association files. Barnett House: Edmonton.

Alberta Teachers' Association, The. (1962-1983). Summary and analysis of collective agreements. Edmonton: Author.

Bloom, G., & Northrup, H.R. (1981). Economics of labour relations. (9th ed.). Georgetown, Ontario: Richard D. Irwin, Inc.

Bryce, R. (1970). The Technical and Vocational Training Act of 1961-1967: An historical survey and documentary analysis. Unpublished doctoral dissertation. University of Alberta, Edmonton.

CCH Canadian Limited. (1984). Canadian labour terms. (8th ed.). Don Mills, Ontario: Author.

Canadian Teachers' Federation. (1986, July). Summary of major teacher salary scales in Canada, 1970-71 to 1985-86. Economic Services Bulletin, 1986-5. Ottawa, Ontario: Author.

Conference on vocational teachers' salaries (1962, May). Report of proceedings, privileged communication for use of members. The Alberta Teachers' Association. Edmonton.

Dibski, D. (1970). Private returns to teacher education in Alberta. Unpublished doctoral dissertation. University of Alberta, Edmonton.

Ehrenberg, G., & Smith, S. (1982). Modern labour economics - theory and public policy. Glenview, Illinois: Scott, Foresman & Company.

Ferguson, G.A. (1966). Statistical analysis in psychology and education. (2nd ed.) Toronto, Ontario: McGraw-Hill Book Company.

Freeman, R.B. (1979). Labour economics. (2nd ed.). Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

General Regulations. (A.R. 43/77 amended to 29/85). Manpower Development Act, Government of the Province of Alberta. Edmonton, Alberta: Queen's Printer.

Goehring, H.J., Jr. (1981). Statistical methods in education. Arlington, Virginia: Information Resources Press.

Government of Alberta. (1960). School grants regulations. Edmonton, Alberta: Author.

Government of Canada. (1961). House of Commons Debates, 1960-1961. (Vol. II). Ottawa, Canada: The Queen's Printer.

Grywalski, S. (1973). A history of technical-vocational education in the secondary schools of Alberta, 1900-1969. Unpublished doctoral dissertation. University of Oregon, Eugene.

Labour Canada. (1984). Glossary of industrial relations terms. (3rd ed.). Ottawa, Canada: Minister of Supply and Services.

List of publicly owned and operated vocational schools, vocational high schools, institutes of technology and schools of agriculture. (1962, April). Unpublished file material. The Alberta Teachers' Association, Edmonton.

Mathew, N.F. (1984). Industrial education in Alberta, Its evolution and development: 1968-1982. Unpublished master's dissertation. University of Alberta, Edmonton.

Mehrens, W.A., & Lehmann, I.J. (1984). Measurement and evaluation in education and psychology. (3rd ed.). Toronto, Ontario: Holt, Rinehart and Winston, Inc.

Ostry, S., & Zaidi, M. (1979). Labour economics in Canada. (3rd ed.). Toronto: MacMillan of Canada.

Peitchinis, S. (1975). The Canadian labour market. Toronto: Oxford University Press.

Platek, R., Pierre-Pierre, F.K., & Stevens, P. (1985). Development and design of survey questionnaires. (Catalogue 12-519E). Ottawa: Statistics Canada.

Program of Studies for Senior High Schools, 1983 Amendments. (1983). Edmonton: Alberta Education.

Salaries of vocational teachers' meeting. (1965, May). Unpublished discussion paper. The Alberta Teachers' Association, Edmonton.

Technical and Vocational Training Agreement. (1962). Government of Canada. Ottawa: The Queen's Printer.

Technical and Vocational Training Assistance Act. (1961). Government of Canada. Ottawa: The Queen's Printer.

Travers, R.M.W. (1964). An introduction to educational research. (2nd ed.). Toronto: Collier-Macmillan.

Vocational education teachers. (1961, September). Unpublished staff report. The Alberta Teachers' Association. Edmonton.

Wallace, K.W. (1979). The private monetary returns to vocational education training in Alberta. Unpublished doctoral dissertation. University of Alberta, Edmonton.

Walton, E., & McKersie, B. (1965). A behavioral theory of labor negotiations: An analysis of a social interaction system. New York: McGraw-Hill Book Company.

Wood, W., & Kumar, P. (1985). The current industrial relations scene in Canada 1985. Industrial Relations Centre. Queen's University at Kingston, Ontario.

Appendix A

This appendix contains the clauses of collective agreements between The Alberta Teachers' Association and those Alberta school boards under whose jurisdictions the earliest vocational education facilities were operated under the provisions of the Technical and Vocational Training Agreement.

Appendix A

Original Clauses Governing the Compensation of Vocational Education Teachers

Calgary Public School District #19, 1963-1965.

"Allowances-Vocational High School Teachers-Specifically Recruited"

(a) Teachers for Vocational High Schools who were recruited from Industry and who successfully completed the special teaching training course provided by the University of Alberta, during the years, 1962-63, 1963-64 and 1964-65, be placed on the initial step of basic salary schedule no. 1 in the category determined by the evaluations committee of the University of Alberta.

(b) The Board shall have discretionary power to pay above Step 1, a vocational allowance from a minimum of $1000 to a maximum that will not, in total, exceed the highest step of the applicable category.

(c) Teaching experience following appointment shall be recognized by addition of the regular annual increment until the total basic salary and vocational allowance are equal to the maximum of the category. Subsequently the vocational allowance will be reduced by the amount of the annual increment, total salary remaining at the highest step.

(d) Advancement from one salary category to another shall be made in the same manner as for any regular teacher, with allowance as in former category.

Camrose Public School District #1315, 1963-1965.

"Vocational Teachers"

For the purposes of this agreement, the term "Vocational Teacher" shall mean a person who has the necessary industrial, technical or professional training and experience to qualify under the Technical and Vocational Training Agreement and its appendices, and who is teaching in the vocational wing of the High School.

A vocational teacher may be granted a special allowance up to the maximum figure for his teacher education in respect of trade qualifications and experience over and above the placement to which he is entitled by virtue of his years of teacher education and experience.

The special allowance of the vocational teacher shall be determined by the Board in negotiation with the teacher at the time that he is hired. A memorandum of his initial salary shall be executed between the Board and the teacher, and signed by both parties.

After this initial placement, the vocational teacher shall be entitled to the regular increments provided by this agreement, up to the maximum salary for his years of teacher education.

When a vocational teacher has completed a further year of teacher education, he shall be placed in the column appropriate to his years of teacher education at the figure next higher than the salary he would have received without completing this year. If his teaching experience would entitle him to a higher salary than the previous statement would provide, then he shall receive full credit for his teaching experience.

Drumheller Public School District #2472, 1964.

Vocational teachers will be defined as teachers whose major field of teaching is in vocational subjects (subject to grievance procedure). They will be paid for all teaching experience (to the maximum). Vocational teachers certificated under the T & V T A will receive an additional placement allowance equal to one teaching increment for each year of industrial experience pertinent to his or her teaching field (as decided by the Board), since September 1956, up to a maximum of six increments (subject to the maximum for his or her category of teacher training). Vocational teachers certificated prior to the T & V T A will receive an additional placement allowance equal to one-half increment for each year of industrial experience pertinent to his or her teaching field (as decided by the Board), since September 1956, up to a maximum of three increments (subject to the maximum for his or her category of teacher training). Implementation of this clause is not to affect any teacher presently on the staff.

Edmonton Public School District #7, 1963-1965.

For the purpose of this agreement, the term "vocational teacher" shall mean a person to whom The Technical and Vocational Training Agreement and its Appendices apply.

The basic salary for vocational teachers who have the necessary industrial, technical or professional training and experience to qualify under the TVTA and its Appendices shall be determined by years of teaching training as evaluated by the University of Alberta and by years of teaching experience, to which may be added a placement allowance.

Provided, however, that the gross salary so determined shall result in a figure on the salary grid as set out in Clause 4.2 of this agreement and shall not exceed the maximum provided in the respective category of teacher training.

The board may in its discretion designate a vocational teacher as a 'vocational trade specialist' under Clause 5.2 of this agreement. Teachers so designated shall receive an additional allowance of $750. The gross salary of such designated personnel shall not exceed that of Step 8 if the teacher is in Category 1, nor that of Step 10 if the teacher is in Category 2.

Any teacher presently on staff shall, if he is engaged in, or if he is transferred to, a vocational training position be eligible for any benefits which he would otherwise receive if he were newly appointed as a vocational teacher.

Edmonton Separate School District #7, 1964-1966.

(same as Edmonton Public School District #7, 1963-1965)

Grande Prairie Public School District #2357, 1964.

Vocational teachers who hold journeyman's qualifications and at least one year of teacher training will be placed on the salary grid in Clause 3.1 according to the following table:

Years of Trade Experience after Certification	Years of Training and Experience in Trade to qualify for Journeyman Status or equivalent			
2	3500	3800	4100	4400
3	3625	3925	4225	4525
4	3750	4050	4350	4650
5	3875	4175	4475	4775
6	4000	4300	4600	4900
7	4125	4425	4725	5025
8	4250	4550	4850	5150
9	4375	4675	4975	5275
10+	4500	4800	5100	5400

The salary figure for which the vocational teacher qualifies in the above table will then be related to the nearest higher salary figure in Column 2 on the salary grid of Table 1 in Section 3.1 of this schedule.

For each year of teaching experience beyond the initial placement position the vocational teacher will receive increments in the normal manner in the column of Table I in which he has been placed.

The vocational teacher will advance to Column 3, 4, etc. as he completes or has completed years of teacher education beyond the first year of teacher training (that is, beyond his initial placement on Table 1). He will proceed in the new column from the same number step on which he was classified in the previous column (for instance if a vocational teacher coming on staff had three years of teacher training beyond journeyman's status and seven years of trade experience which would qualify him for $5,025 as a journeyman on Table above transferred to Table 1 step 6 column 2). The extra two years of teacher training would move him across to step 6 column 4 and thus qualify him for a salary of $6,800 per annum, on the current salary schedule.

Lethbridge Public School District #51, 1963-1965.

A vocational teacher is one who is teaching a unit shop or a vocational shop course at the senior high school level. The professional training of vocational teachers shall be evaluated as follows:

(i) Teacher education in accordance with section 2(a) of this agreement (salary grid).

(ii) A certificate of proficiency in a designated trade (Journeyman's certificate) recognized by the Alberta Apprenticeship Board, or A certificate in Drafting Technology recognized by the Alberta Institutes of Technology shall be regarded as equivalent to one year of teacher education for salary purposes.

Clause (ii) shall not apply when trade training has been given credit towards a Bachelor of Education Degree in Vocational Education.

No teacher will receive payment for more than one trade certificate.

Salaries of vocational teachers to whom this clause applies shall be calculated as follows:

(1) Professional training for salary purposes as defined in (i) and (ii) above,

(2) A placement allowance for trade experience at the discretion of the Board. The gross salary including such allowance shall not exceed the maximum provided in the respective category of teacher training.

(3) After the initial placement on the salary schedule, vocational teachers will proceed to the maximum salary in the increments provided in the salary grid.

Medicine Hat Public School District #76, 1963-1965.

This clause applies only to teachers trained under the technical and vocational training agreement and its appendices. The following principles shall apply in calculating the salaries of such teachers:

(a) Years of teacher education shall be as evaluated by the Faculty of Education of the University of Alberta.

(b) An allowance may be made for trade experience but such allowance shall not exceed the amount which would be received by any other teacher on the staff with equivalent teacher education and maximum years of teaching experience.

(c) Trade experience is not considered as being synonymous with teaching experience.

(d) As teaching increments are paid, the trade experience allowance will be decreased in equal amounts annually, in accordance with the following table, the figures of which are used for illustrative purposes only.

Years of Experience	Basic Salary	Trade Experience Allowance	Teaching Increment (Normal Increment $220)	Gross Salary
0	3400	1000	0	4400
1	3620	900	120	4520
2	3840	800	120	4640
3	4060	700	120	4760
4	4280	600	120	4880
5	4500	500	120	5000
6	4720	400	120	5120

7	4940	300	120	5240
8	5160	200	120	5360
9	5380	100	120	5480
10	5600	0	120	5600

Northlands School Division #61, 1964-1965.

The Board will pay vocational experience allowance for vocational teachers holding journeyman's certificates or equivalent to the extent of one experience increment per year of trade experience to a maximum of five such increments.

Red Deer Public School District #104, 1963-1965.

A teacher with approved trades training, on entering into employment by the school board may be placed by the Board at a point in the salary table commensurate with his income in business, trade, or industry, provided that:

(i) his placement shall not exceed the maximum salary in the column of teacher education for which he qualifies;

(ii) he shall receive no annual increments for experience until his experience as a teacher in public schools exceeds the number of years required for his original placement;

(iii) he shall be eligible to receive pro rata advancement under item 3(a) of this schedule (evaluation of professional training);

(iv) his original placement on the salary table shall be subject to review by the interpretation committee at the request of the Board, or at the request of the Red Deer City Local of The Alberta Teachers' Association.

A teacher in the vocational high school who holds an Alberta Journeyman's certificate or its equivalent shall be granted one year teacher training on the basis of such trades qualification, in addition to the training received in a recognized teacher training institution.

Stettler Public School District #1475, 1964-1965.

In the case of vocational teachers, the Board shall have the right to determine an initial placement as it deems reasonable and necessary --provided, however, that the gross salary of such placement shall not exceed the maximum salary of the year of University education for which the teacher qualifies. Vocational teachers shall be defined as those to whom the Technical & Vocational Training Agreement and its appendices apply.

Appendices B and C

These appendices contain a summary of the correspondence between the researcher and The Alberta Teachers' Association concerning research assistance.

Appendix B

Summary of Correspondence Between the Researcher and Dr. B.T. Keeler, Executive Secretary, The Alberta Teachers' Association re: Research Assistance

In a letter of May 5, 1986 the researcher sought the assistance of The Alberta Teachers' Association in the conduct of her M.Ed thesis research. A copy of the thesis proposal accompanied the letter.

The population for the research was described with specific reference to the listing provided by Alberta Education.

Specific requests were for access to:

1. the home address mailing list of all vocational education teachers named in the 1983/84 Alberta Education listing.
2. collective agreements post-1960 which related to each of the potential respondents to the research instrument.
3. the technical and vocational education file of the Teacher Welfare Program Area. It was explained that the objective in the use of the file was to trace the origins of collective agreement clauses related to the research.
4. An Association return mailing address.
5. A covering letter from the Association to each of the potential respondents encouraging their participation.
6. the Association's printing and mailing services.

In addition, a request was made for financial assistance with the costs of mailing and printing.

Appendix C

Summary of Correspondence Between Dr. B.T. Keeler, Executive Secretary of The Alberta Teachers' Association and the Researcher Regarding Research Assistance

In a letter dated May 22, 1986 the researcher was advised that her request for research assistance had been considered by both the Executive Secretary and the Table Officers Committee of The Alberta Teachers' Association.

The following elements were approved:

1. a letter of endorsement.
2. address labels.
3. access to collective agreements in the Association's files.
4. access to the Technical and Vocational Education file requested by the researcher provided that all quotations were submitted for clearance in context prior to submission of drafts elsewhere.
5. the use of an Association return address.
6. financial assistance with printing and mailing costs.

Appendices D, E and F

These appendices contain the covering letters and the questionnaire sent to the 544 members of the research population.

The Alberta Teachers' Association
BARNETT HOUSE, EDMONTON

1986 09 23

Dear Member,

The research being conducted by C G Anderson is being undertaken with the support of The Alberta Teachers' Association. We believe the study's findings will help in the evaluation of collective agreements and their application to vocational education teachers. I encourage your cooperation.

Yours sincerely,

B T Keeler

B T Keeler
Executive Secretary

BTK/bb

11010 142 STREET, EDMONTON, ALBERTA T5N 2R1 • TELEPHONE (403) 453-2411

INITIAL SALARY LEVELS OF VOCATIONAL EDUCATION TEACHERS IN ALBERTA

Dear Fellow Vocational Education Teacher,

The accompanying questionnaire dealing with initial salary levels of Alberta's vocational education teachers is related to my M Ed thesis research in the Department of Industrial and Vocational Education, University of Alberta. The research is designed to investigate factors associated with initial salary levels of vocational education teachers such as vocational and trade experience, trade qualifications, age, sex, locale and collective agreement provisions. The extent to which initial salaries were competitive with those in non-education trade and vocational areas will also be examined. The questionnaire is being sent to all vocational education teachers as identified by the 1983/84 listing of Alberta Education.

It is hoped that this research may help explain the history and practice of salary compensation for Alberta's vocational education teachers. To this end I seek your cooperation.

Please complete the questionnaire and return in the enclosed stamped envelope by November 14, 1986.

Yours sincerely,

CG Anderson

C G Anderson, Vocational Education Teacher

INITIAL SALARY LEVELS OF VOCATIONAL EDUCATION TEACHERS IN ALBERTA

This questionnaire surveys the extent to which vocational education teachers in Alberta received salary recognition for their vocational and trade experience gained prior to commencing their first vocational teaching assignment. Your cooperation in responding is valued. It will take only a few minutes of your time to complete the questionnaire.

Personal Data

1. Year of Birth

____

2. Sex

☐ Male ☐ Female

Teaching Service Record

3. In what year were you first employed as a vocational education teacher in Alberta?

____

4. With what school board were you first employed as a vocational education teacher in Alberta?

____

____

5. Did you have teaching experience in Alberta prior to your first employment as a vocational education teacher?

☐ Yes ☐ No

6. If you answered "yes" to Q.5, for how many years?

____

7. Describe below the trade and/or vocational experience you obtained prior to commencing your first vocational education teaching assignment. *Please use a separate line for each type of experience and show number of years, e g,*

Apprentice-Electrician	*3 years*
Electrician	*5 years*
______________	______
______________	______
______________	______
______________	______
______________	______

8. Were you granted any type of salary recognition (e g, advance placement, bonus, allowance) by your employing school board for your trade and/or vocational experience gained prior to your first employment as a vocational teacher in Alberta?

☐ Yes ☐ No

9. If you received salary recognition for previous trade and/or vocational experience in the form of an allowance or bonus, in what amount?

$______________

AND/OR

10. If you received salary recognition for previous trade and/or vocational experience in the form of salary schedule increments, how many increments were you granted? *Please check the appropriate box.*

☐ 1 ☐ 2 ☐ 3 ☐ 4
☐ 5 ☐ 6 ☐ 7 ☐ 8
☐ 9 ☐ 10 ☐ 11

11. At the time you began your first vocational education teaching assignment, did you hold a journeyman's certificate or its equivalent?

☐ Yes ☐ No

12. If you answered "yes" to Q.11, in what trade areas? *Check the applicable area(s).*

☐ Agricultural Mechanic
☐ Appliance Serviceman
☐ Auto Body Mechanic
☐ Baker
☐ Barber
☐ Beautician
☐ Boilermaker
☐ Bricklayer
☐ Cabinetmaker
☐ Carpenter
☐ Communication Electrician
☐ Cook
☐ Electrical Rewind Mechanic
☐ Electrician
☐ Electronic Technician
☐ Elevator Constructor
☐ Floorcovering Mechanic
☐ Gasfitter

- ☐ Glassworker
- ☐ Heavy Duty Mechanic
- ☐ Heavy Equipment Operator
- ☐ Instrument Mechanic
- ☐ Insulator
- ☐ Ironworker
- ☐ Lather
- ☐ Machinist
- ☐ Millwright
- ☐ Motor Mechanic
- ☐ Painter & Decorator
- ☐ Partsman
- ☐ Plasterer
- ☐ Plumber
- ☐ Power Lineman & Power Electrician
- ☐ Power System Electrician
- ☐ Printing & Graphic Arts Craftsman
- ☐ Refrigeration Mechanic
- ☐ Roofer
- ☐ Sheet Metal Mechanic
- ☐ Sprinkler Fitter
- ☐ Steamfitter-Pipefitter
- ☐ Steel Fabricator
- ☐ Tilesetter
- ☐ Tool and Die Maker
- ☐ Transport Refrigeration Mechanic
- ☐ Water Well Driller
- ☐ Welder
- ☐ Other Trade Areas (please specify)

13. Which subject area(s) did you teach in your first vocational education teaching assignment? *Check the applicable subject area(s).*

- ☐ Auto Body
- ☐ Beauty Culture
- ☐ Building Construction
- ☐ Drafting
- ☐ Electricity/Electronics
- ☐ Food Preparation
- ☐ Forestry
- ☐ Graphic Communication
- ☐ Health Services
- ☐ Horticulture
- ☐ Mechanics (including Automotives)
- ☐ Mining
- ☐ Performing Arts
- ☐ Pipes
- ☐ Practical Arts
- ☐ Visual Communication
- ☐ Welding
- ☐ Other Vocational Subjects (please specify)

14. In what salary category (i e, number of years of university or teacher preparation) were you placed when you commenced your vocational education teaching assignment in Alberta? *Please check one of the following.*

☐ 1 (or A)	☐ 2 (or B)	☐ 3 (or C)
☐ 4 (or D)	☐ 5 (or E)	☐ 6 (or F)

15. What is your current salary category? *Please check one of the following.*

☐ 1 (or A)	☐ 2 (or B)	☐ 3 (or C)
☐ 4 (or D)	☐ 5 (or E)	☐ 6 (or F)

You are not required to state your name on this questionnaire. Thank you for taking the time to complete it. If you wish to record any further information you think may be useful, please do so in the space below.

Please return the questionnaire by November 14 in the stamped self-addressed envelope provided. If you misplace the envelope, please return the completed questionnaire to—

Initial Salary Levels of
Vocational Education Teachers in Alberta
The Alberta Teachers' Association
Box 1000
Edmonton, AB T5J 9Z9

VITA

Name: Corinne Gay Anderson

Place of Birth: Stamford, England

Year of Birth: 1952

Post-Secondary Education: 1987, University of Alberta, M.Ed

1982, University of Alberta, B.Ed

Related Work Experience: Administrative Assistant
The Alberta Teachers' Association
1983-Present

Consultant
Department of Industry & Technology
Bermuda Government
1983

Group Leader, Finance
Department of Recreation & Parks
Government of Alberta
1976-1980

Practical Office Experience
1971-1976